QK349
.W53
1852
V.5

ICONES

PLANTARUM INDIÆ ORIENTALIS:

OR

FIGURES OF INDIAN PLANTS.

BY

ROBERT WIGHT, M.D, F.L.S, &c.

MEMBER OF THE IMP. ACAD. NATURÆ CURIOSORUM OF THE ROYAL RATISBON BOTANICAL SOCIETY, &c.&c.&c.

SURGEON OF THE MADRAS ESTABLISHMENT.

Vol. V.

MADRAS:

SOLD BY MESSRS. FRANCK AND CO.

CALCUTTA: MESSRS. OSTELL, LEPAGE AND CO.; LONDON: H. BAILLIERE.

PRINTED FOR THE AUTHOR, BY P. R. HUNT, AMERICAN MISSION PRESS.

1852.

Mo. Bot. Garden
1904.

INDEX TO ICONES VOLUME V.

Acalypheæ 1861
Aceras angustifolia (Lind.) 1691
Achyranthes aspera 1777
——— bidentata ... 1779
——— brachiata... ... 1776
——— *fruticosa* ... 1778
——— *orbiculata* 1783
——— rubrofusca ... 1778
Acriopsis Indica (R. W.) ... 1748
——— Javanica (Bl.) 1748
Acrodiclidia 1817
Actephila Neilgherrensis ... 1910
Actinodaphne angustifolia ... 1841
——— melochina ... 1843
——— speciosa ... 1842
Adelia neriifolia 1868
——— retusa 1869
Æceolades tenera (Lind.) 1683
Ærides cylindricum 1744
——— Lindleyanum (R. W.) 1677
——— Wightianum (Lind.)... 1669
Aërva brachiata 1776
——— floribunda ... 1776-*bis.*
——— *lanata* 1776
Aggeianthus marchantioides (R.W.) 1737
Agyneia bacciformis ... 1893
Aleurites lacciferum 1915
Alseodaphne semicarpifolia 1826-27-B
Amanoa *Guianensis* 1911
——— Indica 1911
Anæctochilus setaceus (Blume) 1731
Andrachne trifoliata 1880
Anisonema multiflora 1895-1-1899
Antidesmeæ 1866-76-77
Apollonias Arnottii 1819
Apaturia Lindleyana (R. W.) 1662
——— *senilis* (Lind.) ... 1662
Apetalon minutum (R. W.) 1758
Appendicula Hasseltii (Bl.) ... 1748
Aristolochia Indica 1858
——— lanceolata ... 1858
Arundenia bambusifolia (Lind.) 1661
Atriplex heterantha... ... 1787
Baliospermum polyandrum 1885
Banalia thyrsiflora 1774
Begoniaceæ 1810
Begonia dipetala 1813
——— Grahamiana ... 1811
——— *Malabarica* 1817
——— subpeltata ... 1812
Beilschmiedia Roxburghiana 1828
Blackwellia tetrandra ... 1851
Boerhaavia repanda 1766
Bolbophyllum *Calamaria* ... 1749
——— *Careyanum* 1650
——— fuscopurpureum(R. W.) 1651
——— Neilgherrense (R.W.) 1650
——— tremulum (R. W.) ... 1749
Briedelia spinosa 1905
Bromheadia palustris (Lind.) 1740
Buxeæ 1861
Cælogyne angustifolia (A.Rich.) 1641
——— corrugata (R. W.) ... 1639
——— nervosa (A. Rich.) 1638
——— odoratissima (Lind.) 1640
Calanthe Perrottetii (A. Rich.) 1664-65
——— *veratrifolia* (Lind.) 1664-65
Campanulaceæ 1810
Camphoreæ 1817
Camphora officinarum ... 1818
Cansjera Rheedii ... 1861
——— *scandens* 1861
Caroxylon Indicum ... 1794
Casearea elliptica 1849
Cassytha filiformis ... 1847
Cassytheæ 1817
Celosia argentea 1767
——— *aspera* 1772
——— *cristata* 1767
——— *polygonoides* 1768
——— pulchella 1768
Centrostachys aquatica ... 1780
Cephalanthera acuminata(R.W.) 1721
Ceratogynum 1899
——— rhamnoides ... 1900
Chamissoa albida 1769
——— aspera 1772
——— dichotoma ... 1771
——— nodiflora ... 1770
——— *pyramidalis* 1767
Cheirostylis flabellata (R. W.) 1727
Chenopodiaceæ 1810
Chenopodina Indica ... 1793
——— microphylla ... 1793
Chenopodium ambrosioides 1786
Chiloschista usnioides (Lind.)... 1741
Cinnamomeæ 1817
Cinnamomum 1817
Cirrhopetalum albidum (R.W.) 1653
——— caudatum (R. W.) 1658
——— fimbriatum (R. W.) 1655
——— grandiflorum (R.W.) 1656
——— Macræi? (Lin.) 1652-1656
——— Neilgherrense (R. W.) 1654
——— Walkerianum (R. W.) 1657
Claoxylon digynum ... 1884-86
——— muricatum 1886
Coccoloba Indica 1806
Cometes Surattensis 1785
Compositæ 1862
Conspectus Generum Podostemaceæ 1915
Cottonia macrostachya (R. W.) 1755
Croton *Aromaticum* 1915
——— lacciferum 1915
——— *muricatum* 1886
——— *polyandrum* ... 1885
——— *Tiglium* 1914
——— umbellatum ... 1874
Crotoneæ 1861
Cryptocarya 1817
Cryptocarya floribunda ... 1829
——— Griffithiana ... 1830
Cryptochilus sanguinea (Wall.) 1757
Cucumis 1810
Cucurbitaceæ 1810
Cullenia excelsa (R. W.) ...1761-2
Curæ posteriores 1915
Cyathula capitata 1782
——— *orbiculata* ... 1783
——— tomentosa 1781
Cylicodaphne *tetranthera* 1817
——— Wightiana 1833-1840
Cymbidium aloifolium (Sw.) 1687-88
——— erectum (R. W.) ... 1753
——— tenuifolium(Willd.) 911-1689
——— triste (Willd.) ... 1689
Cypripedium purpuratum(Lind) 1760
Cyrtopera Cullenii (R. W.) ... 1754
——— *flava* (Roxb.) 1690-1754
——— fusca (R. W.) ... 1690
Cytheris *cordifolia* (Lind.) 1751-2
——— Griffithii (R. W.) 1751-2
Dalechampia 1861
——— *Capensis* ... 1881
——— Indica 1882
——— velutina ... 1881
Dalzellia 1918-5
——— pedunculosa ... 1919-4
——— foliosa 1919-2
——— Lowii 1919-3
——— *longipes* 1920-2
——— pulchella ... 1920-2
——— ramosissima 1920
——— Zeylanica 1919-1
Daphnidianæ 1817
Dendrobium album (R. W.) 1645
——— *alpestre* 1643
——— aureum (Lind.) 1646
——— *denudans* 1643
——— filiforme (R. W.) 1642
——— graminifolium (R.W.) 1649
——— humile (R. W.) 1643
——— Jerdonianum (R.W.) 1644
——— macrostachyum(Lind) 1647
——— ramosissimum (R.W.) 1648
Dicræa dichotoma 1916-2
——— elongata ... 1917-1
——— longifolia 1916-4
——— rigida 1916-5
——— stylosa 1917-2
——— Wallichii ... 1916-1
——— Wightii 1916-3
Dicypellium 1817
Dienia cylindrostachya (Lind.) 1630
Diplocentrum congestum(R.W.) 1682
——— longifolium (R. W.) 1681
——— recurvum (Lind.) 1680
Diploclinium 1810–1817
——— Arnottianum ... 1815
——— biloculare ... 1814
——— cordifolium ... 1816
——— Lindleyanum ... 1817
Disperis Neilgherrensis (R. W.) 1719
——— *tripetaloides* (Lind.) ... 1719

Dodecadenia 1833
Durio Ceylanica (Gardner) 1761–2
Elæagnus *conferta* 1856
——— latifolia ... 1856
Emblica officinalis ... 1895–2–95
Epipactis carinata (Roxb.) ... 1720
——— Dalhousiæ (R. W.) 1723
——— macrostachya (Lind.) 1722
Eria pauciflora (R. W.) ... 1636
—— polystachya (Ach. Richard) 1634–35
—— pubescens (R. W.) ... 1634–35
—— reticosa (R. W.) 1637
Eulophia macrostachya (Lind.) 1667–68
——— ramentacea (Lind.) 1666
Euphorbiaceæ 1810–1861
Euphorbia *glauca* 1864
——— *læta* 1864
——— Nivulia 1862
——— Rothiana ... 1864
——— *segetalis* 1864
——— trigona 1863
Euphrobosces pigmæa (Griffith) 1732
Euxolus caudatus 1773
Excæcaria *Agallocha* ... 1865
——— crenulata 1865
——— *oppositifolia* ... 1865
Falconera Malabarica ... 1866
——— *Wallichiana* ... 1866
Flavifloræ 1817
Fluggea leucopyrus ... 1874
Gelonium lanceolatum ... 1867
Gesneraceæ 1810
Giesehia molluginoides ... 1918–5
——— *rubella* ... 1918–5
Givotia Rottleriformis ... 1889
Glochidion 1905
——— arboreum ... 1907–1
——— ellipticum 1906
——— *Heyneanum* ... 1907–1
——— *Neilgherrense* ... 1907–1
——— velutinum ... 1907–2
Glochisandra 1904–4
——— acuminata ... 1905
Gnidia eriocephala ... 1859
——— Sisparensis ... 1860
Gomphrena globosa ... 1784
Goodyera *elongata* ... 1730
——— ovalifolia (R. W.) 1730
——— procera (Hooker) ... 1729
Goughia 1877
——— *Griffithiana* 1877
——— Neilgherrensis 1877–1878–79
Gramatophyllum Finlaysonianum 1740
Gynoon 1905
——— *Heyneanum* ... 1905–08
——— hirsutum 1909
——— Jussieuanum ... 1908
——— *triandrum* 1908
Gyrinops Walla 1850
Haasia *media* 1831
——— Wightii 1831
Habenaria affinis (R. W.) ... 1707
——— cephalotes (Lind.) 1711
——— decipiens (R.W.)927–1714
——— *digitata* 1701
——— elliptica (R. W.) 1706
——— fimbriata (R. W.) 1712
——— foliosa (Richd.) ... 1700
——— Heyneana (Lind.) 1703–4
——— Jerdoniana (R. W.) 1715
——— montana(Richd.) 927–1714
——— ovalifolia (R. W.) 1708
——— peristyloides (R. W.) 1702
Habenaria plantaginea (Lind.) 1710
——— platyphylla (Spreng) 1709
——— Richardiana (R. W.) 1713
——— trinervia (R. W.) 1701
——— viridiflora (R. Br.) 1705
Hemicyclia sepiaria 1872
Herandia sonora 1855
Hexacentris 1847
Hippomaneæ 1861
Horsfieldia odorata 1857
Hydrobryum ... 1915–1918–5
——— griseum 1918–3
——— olevaceus ... 1918–2
Illecebrum brachiatum ... 1776
Ipsea speciosa (Lind.) ... 1663
Josephia lanceolata (R. W.) 1742
——— latifolia (R. W.) ... 1743
Katon Niruri 1899
Kirganelia 1894
Kochia Indica 1791
Lauraceæ 1817-1855
Laurus 1833
——— *bilocularis* 1828
——— *lanceolaria* 1821
——— *porresta* 1832
——— *villosa* 1822
Lawia Zeylanica 1919-1
Lepidadenia 1833-36-38
——— glabrata ... 1838
——— Griffithii 1846
——— Neesiana ... 1840
——— ovalifolia ... 1839
——— Wightiana 1836-1336-7
Lichinora Jerdoniana (R. W.) 1738
Liparis *atropurpurana* ... 1633
——— biloba (R. W.) ... 1633
——— elliptica (R. W.) ... 1735
——— *viridiflora* 1735
Litsæa Ceylanica 1844
——— oblonga 1845
Macaranga *flexuosa* ... 1883
——— Indica 1883
——— *Roxburghii* ... 1883
——— *tomentosa* 1883
Machilus glaucesens ... 1825
——— macrantha 1824
Macræa 1900
——— Gardneriana ... 1902-3
——— myrtifolia 1902-2
——— oblongifolia ... 1902-1
——— ovalifolia 1902-4
——— Rheedii 1901
Manostachys 1912-13
Mappa 1883
Melanthesa *Chinensis* ... 1898-2
——— obliqua ... 1898-2
——— rhamnoides ... 1898-1
——— *truncata* 1897
——— turbinata 1897-98-2
Meyenia 1847
Microelus Roeperianus ... 1880
Microstylis discolor (Lind.) ... 1631
——— luteola (R. W.) 1632
——— *versicolor* 1632
Mniopsis Hookeriana ... 1918-4
——— Johnsonii ... 1918-5
Monochilus affine (Lind.) ... 1728
——— *flabellatum* ... 1727
Mucuna 1861
Mycaranthes stricta ... 1733
Myrieaceæ 1876
Myristica Horsfieldii ... 1857
Nectandreæ 1817
Nepenthes 1915
Oberonia *anthropophora* ... 1626
Oberonia Arnottiana (R. W.) 1628
Oberonia Brunoniana (R. W.) 1622
——— denticulata (R. W.) 1625
——— Griffithii (R. W.) 1629
——— imbricata? (Blume) 1629
——— Lindleyana (R. W.) 1624
——— platycaulon (R. W.) 1623
——— verticillata (R. W.) 1626
——— Wightiana (Lindley in Herb W.) ... 1627
Obione *Belangeri* ... 1789
——— fera 1788
——— Konigii 1790
——— Stocksii 1789
Olacineæ 1861
Orcodaphneæ 1817
Osyris peltata 1883
——— Wightiana 1853
Oxysepala ovalifolia (R. W.) 1736
Pachystemon 1883
Pattonia macrantha (R. W.) 1750
Pierardia *Courtallensis* ... 1912-13
——— macrostachys 1912-13
Peltandra 1890
——— longipes 1891
——— parvifolia ... 1892
Peristylus exilis (R. W.) ... 1698
——— Lawii (R. W.) ... 1695
——— Richardianus (R. W.) 1697
——— robustior (R. W.) 1699
——— spiralis (Richd) 1696
Perseæ 1817
Persea gratissima 1823
Phajas bicolor (Lind.) 1659-60
Phoebeæ 1817
Phoebe *glaucesens* 1825
——— lanceolata 1821
——— paniculata 1820
——— villosa 1822
Phreatia uniflora (R. W.) 1734
Phyllantheæ 1861
Phyllanthus 1896
——— *bacciformis* ... 1893
——— leprocarpus ... 1895
——— Madraspatensis ... 1895
——— *multiflorus* 1895-98-99-1901
——— *myrtifolius* 1902
——— Niruri 1894
——— polyphyllus ... 1895
——— *rhamnoides* 1895-98-1900
——— Rheedii 1895
——— *scandens* ... 1895-99
——— *tetrandrus* 1900-1902-1903
——— *turbinatus* 1897
——— vitis idæa 1898-1900
Pisonia aculeata ... 1763-64
——— *georgina* ... 1763-64
——— morindifolia ... 1765
Platanthera affinis (R. W.) ... 1693
——— branchiphylla (Lin.) 1694
——— iantha (R. W.) ... 1692
Podanthera pallida (R. W.) 1795
Podochilus falcatus ... 1748-2
——— Malabaricus (R. W.) 1748-2
Podostemaceæ 1915
Podostemon 1917-18
——— *dichotomus* 1916-2
——— *elongatus* ... 1917-1
——— *Griseus* ... 1918-3
——— *olivaceus* 1918-2
——— *rigidus* ... 1916-5
——— subulatus ... 1918-1
——— *Wallichii* 1916-1
——— *Wightii* ... 1916-3
Pogonia biflora (R. W.) 1758-2
——— carinata (Lind.) ... 1720
Polyadinia 1833

Polygonaceæ 1810
Polygonum ambiguum 1797
——— *aviculare* ... 1808
——— barbatum ... 1798
——— Chinense ... 1806
——— Donii ... 1801
——— glabrum ... 1799
——— horridum ... 1803
——— Indicum ... 1808
——— molle ... 1807
——— Nepalense ... 1804
——— pedunculare ... 1802
——— strictum 1800
——— Wallichii ... 1805
Polystachya luteola (Hooker) 1678
——— purpurea (R. W.) 1679
Pseudanthus brachiatus ... 1776
Psilotrichum nudum ... 1775
Pteropyrum Oliverii 1809
Ptilotus ovatus 1775
Pupalia orbiculata 1783
Putranjiva Roxburghii ... 1876
Pyrrhosa Horsfieldii 1857
Reidia 1902-4
——— fimbriata ... 1904-1
——— floribunda 1903
——— latifolia ... 1904-2
——— ovalifolia 1904-3
——— polyphylla ... 1904-4
Rhamnus Zeylanica ... 1899
Rhododendron 1810
Rottlera *dicocca* 1915
——— *Indica* ... 1870-71
——— *peltata* 1873-86
——— *tinctoria* 1915
Rumex Nepalensis ... 1810
Saccolabium guttatum (Lind.) 1745-6
——— *niveum* (Lind.) ... 1676
——— paniculatum (R.W.) 1676
——— papillosum (Lind.) 1672
——— Rheedii (R. W.) 1745-6
——— rubrum (Lind.) 1673
——— speciosum (R. W.) 1674-75
Salsola spinescens 1795
Sarcanthus filiformis (R. W.) 1684
——— pauciflorus (R. W.) 1747
——— roseus (R. W.) 1685
——— Walkerianus (R. W.) 1686
Sarcoclinium 1886
——— longifolium 1887-88
Sarcococca trinervia 1877
Sarcospermum 1910
Sarcostigma Kleinii 1854
Sassafras Parthenoxylon 1832
Satyrium albiflorum (Richd.) 1717
——— Perrottetianum ... 1716
——— Wightianum ... 1718
Scævoleæ 1810
Schmidia bicolor 1848
Spathoglottis pubescens (Lind.) 1739
Spiranthes australis (Lind.) 1724
——— densa ? 1724
——— *longispicata* ... 1724
——— *Wightiana* 1724
Sterculia 1861
Stylodiscus trifoliatus ... 1880
Suæda Indica 1796
——— monoica 1792
Symplocaceæ 1878-79
Tæniophyllum Jerdonianum ... 1756
Tæniophyllum *parviflora* (R.W.) 1669
——— pulchella (R. W.) 1671
——— *spathulata* 1669
——— Wightiana? (Lind.) 1670
Tetranthereæ 1817
Tetranthera ... 1817-1833
——— *glabrata* 1838
——— ligustrina ... 1835
——— *monopetala* 1833
——— Panamanja ... 1836
——— tomentosa 1834
——— *Wightiana* ... 1833
Thesium Wightianum ... 1852
Thymaleæ 1861
Tiglium Klotcheanum ... 1914
——— *officinale* ... 1914
Tomex 1833
Tragularia horrida ... 1763-64
Trigonostemon heteranthum 1890
Trewia nudiflora ♂ ... 1870-71
——— *serratum* 1890
Tristicha bryoides ... 1920-2
——— *hypnoides* ... 1920-2
——— Zeylanica ... 1919-1
Tulasnea 1915
Umbelliferæ 1810
Violea (P.) glaucesens 1825
Ximenea olacioides ... 1861
Zosterostylis Walkeræ 1748-4
——— *Zeylanica* ... 1748-4
Zuxine bracteata ... 1724-*bis.*
——— brevifolia 1725
——— robusta 1726
——— *sulcata* 1724-25

INDEX ARRANGED ACCORDING TO NATURAL ORDERS.—VOL. V.

BOMBACEÆ.

Cullenia excelsa 1761-62

PARONYCHIACEÆ.

Cometes Surattensis 1785

ACANTHACEÆ.

Schmidia bicolor 1848

NYCTAGINACEÆ.

Boerhaavia repanda 1766
Pisonia aculeata ♂ ... 1763
——— aculeata ♀ 1764
——— morindifolia ... 1765

AMARANTACEÆ.

Achyranthes aspera 1777
——— bidentata ... 1779
——— rubrofusca ... 1778
Aërva floribunda 1776
Banalia thyrsiflora 1774
Celosia argentia 1767
——— pulchella 1768
Centrostachys aquatica ... 1780
Chamissoa albida 1769
——— aspera 1772
——— dichotoma... ... 1771
——— nodiflora ... 1770
Cyathula capitata 1782
——— tomentosa ... 1781
Euxolus caudatus 1773
Gomphrena globosa ... 1784
Psilotrichum nudum 1775
Pupalia orbiculata ... 1783

CHENOPODIACEÆ.

Atriplex heterantha 1787
Caroxylon Indicum ... 1794
Chenopodina Indica 1793
Chenopodium ambrosioides 1786
Kochia Indica 1791
Obione fera 1788
——— Konegii 1790
——— Stocksii 1789
Salsola spinescens 1795
Suæda Indica 1796
——— monoica 1792

POLYGONACEÆ.

Polygonum ambiguum ... 1797
——— barbatum ... 1798
——— Chinense ... 1806
——— Donii ... 1801
——— glabrum ... 1799
——— horridum ... 1803
——— Indicum 1808
——— molle ... 1807
——— Napalense ... 1804
——— pedunculare ... 1802
——— strictum ... 1800
Polygonum Wallichii ... 1805
Pteropyrum Oliverii... ... 1809
Rumex Nepalensis ... 1810

BEGONIACEÆ.

Begonia dipetala 1813
——— Grahamiana ... 1811
——— subpeltata 1812
Diploclinium Arnottianum 1815
——— biloculare ... 1814
——— cordifolium 1816
——— Lindleyanum ... 1817

LAURACEÆ.

Actinodaphne angustifolia ... 1841
——— molochina 1843
——— speciosa ... 1842
Alseodaphne semecarpifolia 1826
——— semecarpifolia (3) 1827
Apollonias Arnottii ... 1819
Beilschmiedia Roxburghiana... 1828
Camphora officinarum ... 1818
Cassyta filiformis 1847
Cryptocarya floribunda 1829
——— Griffithiana ... 1830
Cylicodaphne Wightiana... 1833
Haasia Wightii 1831
Lepidadenia glabrata ... 1838
——— Griffithii... ... 1846
——— Neesiana ... 1840
——— ovalifolia 1839
——— Wightiana ... 1837
Litsœa Ceylanica... ... 1844
——— oblonga 1845
Machilus glaucescens ... 1825
——— macrantha 1824
Persea gratissima 1823
Phoebe lanceolata 1821
——— paniculata ... 1820
——— villosa... 1822
Sassafras Parthenoxylon ... 1832
Tetranthera ligustrina ... 1835
——— Panamanja ... 1836
——— tomontosa ... 1834

MYRISTICACEÆ.

Pyrrhosia Horsfieldii ... 1857

ELAGNACEÆ.

Elæagnus latifolia 1856

THYMELACEÆ.

Cansjera Rheedii 1861
Gnidia eriocephala ... 1859
——— Sisparensis 1860

HERNANDIACEÆ.

Hernandia Sonora 1855
Sarcostigma Kleinii ... 1854

AQUILARINEÆ.

Gyrinops Walla 1850

JAMYDEÆ.

Casearia elliptica 1849

HOMALINEÆ.

Blackwellia tetrandra ... 1851

SANTALACEÆ.

Osyris Wightiana 1853
Thesium Wightianum ... 1852

ARISTOLOCHIACEÆ.

Aristolochia lanceolata ... 1858

EUPHORBIACEÆ.

Actephila Neilgherrensis ... 1910
Adelia neriefolia ... 1868
——— retusa 1869
Agyneia bacciformis ... 1893
Amanoa Indica 1911
Anisonema multiflora ... 1899
Baliospermum polyandrum ... 1885
Ceratogynum rhamnoides 1900
Claoxylon digynum 1884
——— muricatum ... 1886
Croton lacciferum 1915
——— umbellatum ... 1874
Dalechampsia Indica 1882
——— velutina ... 1881
Emblica officinalis 1896
Euphorbia Nivulia ... 1862
——— Rothiana 1864
——— trigona ... 1863
Excæcaria crenulata 1865
Falconera Malabarica ... 1866
Fluggea leucopyrus 1875
Gelonium lanceolatum ... 1867
Givotia Rottleriformis ... 1889
Glochidion arboreum ... 1907
——— ellipticum 1906
——— vilutinum ... 1907
Glochisandra acuminata ... 1905
Goughia Neilgherrensis ♂ 1878
——— Neilgherrensis ♀ ... 1879
Gynoon hirsutum 1906
——— Jussieuanum ... 1908
Hemicylia sepiaria ... 1872
Macaranga Indica 1883
Macræa Gardneriana ... 1902
——— myrtifolia 1902
——— oblongifolia ... 1902
——— ovalifolia 1902
——— Rheedii 1901
Melanthesa obliqua 1898
——— rhamnoides ... 1898
——— turbinata... ... 1897
Microelus Roeperianus ... 1880
Peltandra longipes 1891
——— parvifolia ... 1892
Pierardia macrostachys ♂ 1912

Pierardia macrostachys ♀ ... 1913
Phyllanthus leprocarpus ... 1895
——— Madraspatensis... 1895
——— Niruri ... 1894
——— Polyphyllus ... 1895
——— Rheedii ... 1895
Putranjiva Roxburghii ... 1876
Reidia fimbriata 1904
——— floribunda 1903
——— latifolia 1904
——— ovalifolia 1904
——— polyphylla 1904
Rottlera peltata 1873
Sarcoclinium longifolium ♂ 1887
——— longifolium ♀ ... 1888
Sarcococca trinervia ... 1877
Tiglium Klotcheanum ... 1914
Trewia nudiflora ♂ ... 1870
——— nudiflora ♀ 1871
Trigonostemon heteranthum 1890

PODOSTEMACEÆ.

Dalzellia foliosa 1919
——— Lawii 1919
——— pedunculosa ... 1919
——— ramosissima ... 1919
——— Zeylanica ... 1919
Dicræa dichotoma 1916
——— elongata 1917
——— longifolia 1916
——— rigida 1916
——— stylosa 1917
——— Wallichii 1916
——— Wightii 1916
Hydrobryum Griseum ... 1918
——— olivaceum ... 1918
Mniopsis Hookeriana ... 1918
——— Johnsonii 1918
Podostemon subulatus ... 1918
Tristacha bryoides 1920

ORCHIDEÆ.

Aceras angustifolia 1691
Acriopsis Indica 1748
——— Javanica 1748
Æecolades tenera 1683
Ærides cylindricum 1744
Aerides Lindleyanum ... 1677
——— Wightianum 1669
Aggeianthus marchantioides 1737
Anæctochilus setaceus ... 1731
Apaturia Lindleyana ... 1662
——— *senilis* 1662
Apetalon minutum ... 1758
Appendicula Hasseltii ... 1748
Arundenia bambusifolia ... 1661
Bolbophyllum *Calamaria* ... 1749
——— *Careyanum* ... 1650
——— fuscopurpureum ... 1651
——— Neilgherrense ... 1650
——— tremulum 1749
Bromheadia palustris ... 1740
Cælogyne angustifolia... ... 1641
——— corrugata 1639
——— nervosa 1638
——— odoratissima ... 1640
Calanthe Perrottetii ... 1664-65
——— *veratrifolia* ... 1664-65
Cephalanthera acuminata ... 1721
Cheirostylis flabellata ... 1727
Chilochista usnioides 1741
Cirrhopetalum albidum ... 1653
——— caudatum 1658
——— fimbriatum ... 1655
——— grandiflorum ... 1656
——— Macræi? ... 1652,1656
——— Neilgherrense ... 1654
——— Walkerianum ... 1657
Cottonia macrostachya ... 1755
Cryptochilus sanguinea ... 1757
Cymbidium aloifolium 1687-88
——— erectum 1753
——— tenuifolium ...911-1619
——— triste 1689
Cypripedium purpuratum 1760
Cyrtopera Cullenii 1754
——— *flava* ... 1690-1754
——— fusca 1690
Cytheris *Cordifolia* ... 1751-2
——— Griffithii 1751-2
Dendrobium album 1645
——— *alpestre* 1643
——— aurium 1646
——— *denudans* ... 1643
——— filiforme 1642
——— graminifolium ... 1649
——— humile 1643
——— Jerdonianum ... 1644
——— macrostachyum ... 1647
——— ramosissinum ... 1648
Dienia clyindrostachya ... 1630
Diplocentrum congestum ... 1682
——— longifolium ... 1681
——— recurvum ... 1680
Diseris Neilgherrensis ... 1719
——— *tripetaloides* ... 1719
Epipactis carinata 1720
——— Dalhousia ... 1723
——— macrostachya ... 1722
Eria pauciflora 1636
——— polystachya ... 1634-35
——— pubescens 1634-35
——— reticosa 1637
Eulophia macrostachya ... 1667-68
——— ramentacea 1666
Euphrobosces pigmæa ... 1732
Goodyera *elongata* 1730
——— ovalifolia ... 1730
——— procera 1729
Gramatophyllum Finlaysonianum 1740
Habenaria affinis 1707
——— cephalotes 1711
——— decepiens ...927-1714
——— *digitata* 1701
——— elliptica 1706
——— fimbriata 1712
——— folioso 1700
——— Heyneana ... 1703-4
——— Jerdoniana 1715
——— montana ... 927-1714
——— ovalifolia 1708
——— peristyloides ... 1702
——— plantaginia ... 1710
——— platyphylla ... 1709
——— Richardiana ... 1713
——— trinervia 1701
——— viridiflora ... 1705
Ipsea spiciosa 1663
Josephia lanceolata ... 1742
——— latifolia 1743
Lichinora Jerdoniana ... 1738
Liparis *atropurpurana* ... 1633
——— biloba 1633
——— elliptica 1735
——— *viridiflora* 1735
Microstylis discolor ... 1631
——— luteola 1632
——— *versicolor* ... 1632
Monochilus affine 1728
——— *flabellatum* ... 1727
Mycaranthus stricta ... 1733
Oberonia *anthropophora* ... 1626
——— Arnottiana 1628
——— Brunoniana ... 1622
——— denticulata 1625
——— Griffithii ... 1629
——— imbricata ? ... 1629
——— Lindleyana ... 1624
——— platycaulon ... 1623
——— verticillata ... 1626
——— Wightiana 1627
Oxysepala ovalifolia ... 1736
Pattonia macrantha 1750
Peristyles exilis 1698
——— Lawii 1695
——— Richardianes ... 1697
——— robustior 1699
——— spiralis 1696
Phajas bicolor 1659-60
Phreatea uniflora 1734
Platanthera affinis 1693
——— brachiphylea 1694
——— iantha 1692
Podanthera pallida 1795
Podochilus falcatus 1748-2
——— Malabaricus ... 1748-2
Pogonia biflora 1758-2
——— carinata 1720
Polystachya luteola 1678
——— purpurea 1679
Saccolabium guttatum ... 1745-6
——— *niveum* 1676
——— paniculatum ... 1676
——— papillosum ... 1672
——— Rheedii ... 1745-6
——— rubrum 1673
——— spiciosum ... 1674 75
Sarcanthus filiformis 1684
——— pauciflorus ... 1747
——— roseus 1685
——— Walkerianus ... 1686
Satyrium albiflorum 1717
Perrottetianum 1716
——— Wightianum ... 1718
Spathoglottis pubescens ... 1739
Spiranthes australis 1724
——— densa ? ... 1724
——— *longispicata* ... 1724
——— *Wightiana* ... 1724
Tæniophyllum 1756
——— *parviflora* ... 1669
——— pulchella ... 1671
——— *spathulata* ... 1669
——— Wightiana ? ... 1670
Zosterostylis Walkeræ ... 1748-4
——— *Zeylanica* ...1748-4
Zuxine bracteata ... 1724-*bis*
——— brevifolia 1725
——— robusta 1726
——— *sulcata* 1724-25

EXPLANATION OF PLATES.

VOL. V.—PART I.

ORCHIDEÆ.

This very interesting order of monocotyledonous plants is, deservedly, a universal favourite with both cultivators and Botanists. With the former on account of the numerous flowers of surpassing beauty which it provides, and with the latter, on account of the endless variations of form and combination which its few and simple elementary parts furnish for his consideration and study. To master these, however, is a work demanding both time and patience on the part of the inquirer.

Being well aware of this, as well as of the interest which attaches to this order I have been induced, at the risk of falling into many blunders, to devote an unusully large space of this work to its elucidation even at this late stage of my progress (the present being the concluding volume) while so many others of great interest and difficulty still remain untouched.

Reduced to its elements, the flower of an Orchid (I use the term collectively of the whole order) is sufficiently simple, consisting of a perianth (the floral leaves) of six parts; one, rarely two, and still more rarely, three fertile stamens: a stigma: and an ovary. The perianth is disposed in a double series, the three exterior parts being equivalent to the calyx (sepals) the three interior to the corolla (petals) one of which from differing more or less in form colour and texture from the other two has, from being usually placed in front and in the most dependent part of the flower, received the name of the Lip. This last with its appendage, the spur, is the most important piece of the six forming the perianth, from its generally furnishing marks, often of great value, in the discrimination of genera, which the others seldom do. Were the flower complete in all its parts, it would have three perfect stamens, in place of which, it has usually only one, and that so masked that persons who have not studied the family scarcely know how or where to look for it. It is in the centre of the flower forming part of the thick, more or less elongated body called the column, having its anther, or polleniferous portion, resembling, in many cases, a little cap containing the pollen lying on the top. On the side of the column next the lip, if attentively looked for, will be seen a slight moist somewhat glistening glutinous depression; that is the stigma. The stamens and pistil are therefore combined to form the column. In Satyrium this structure is somewhat departed from, the stigma being terminal and two-lobed, and the cells of the anther quite distinct.

The pollen is very variable and, to the Botanist, is the most important part of the organization, as we shall by and bye see.

These few elementary parts vary so much among themselves in form, position, and combination, as to have enabled Botanists, in the course of their researches, to construct from them about 400 genera, for the accommodation and more easy discrimination of probably not fewer than between three and four thousand species. Amidst so great a number of variations, it is almost impossible for words to convey to the mind an adequate conception of the innumerable minute points of difference which mark the narrow boundaries between so great a number of genera; the aid therefore of the pencil becomes nearly indispensable. Under this conviction I have deemed it advisable to give analyses of as many genera as I could, and have fortunately been able to produce representations of upwards of 70, a great number certainly when it is considered that Wallich's list of Indian plants includes only 63 genera. I have still in my possession, drawings of several others, but not the specimens from which to complete their generic analysis. This statement is not made in the spirit of boasting, far from it, but simply to show that though much as has already been done, towards acquiring a knowledge of Indian Orchideæ, much still remains to be done and thereby encourage our successors to persevere,* having the assurance of still finding a rich harvest of novelties, to reward their diligence.

To assist those who may not have studied the floral structure of the order, or who may not have the means of consulting books, descriptive of its organization, I shall here give a very brief account of it, merely sufficient to enable any one to understand the following dissections.

To prevent misunderstanding, it is necessary to premise that I view the flower in the position it usually presents itself when looked at in front, that is, with the lip next the beholder and more or less dependent. On looking at the flower from behind, it is the most remote anterior portion. The lip being anterior, the odd sepal and pair of petals are posterior, or next the axis or stalk. Such is the usual position, but sometimes it is reversed and the lip is at the top of the flower, and then is next the stalk, or posterior, as in *Polystachya* and *Satyrium* (the lip forms the hood or galia of the last) the flower is then said to be *resupinate*, though that in truth is the normal position of the flower. The usual position is produced by the ovary receiving a half twist which brings the lip from the upper to the lower side: or in other words places it in the front (anterior) in place of the back of the flower. How this change is brought about it is not always easy to say, but we may for convenience assume that it is often the result of gravitation, for being the bulkier and heavier part, it has a natural tendency to seek the lowest side and in doing so twists the young and pliable ovary.

Beginning from without we find three sepals, these are either all distinct and equal, or the two anterior ones are large or small, divided or entire, are spreading or appressed to the lip, are more or less united either directly to each other or through the medium of the prolonged base of the column, in the latter case forming a spurious spur or in those cases where the columnar process is broad what is called a *mentum* or chin—many of the *Dendrobrums* afford examples of the former and *Certopera fusca* of the latter. Some-

A

times all the three are united into a tube or vase inclosing the other parts of the flower, as in *Aggeianthus.* These variations supply generic characters. The posterior sepal is usually free, variously shaped, sometimes spreading but oftener erect, more or less boat-shaped and then forming a sort of hood or helmet (galia) over the column, as if to protect it from the weather, whence it is occasionally said to be galiate.

The three petals are placed within and alternate with the sepals, the posterior or odd sepal having the pair of petals next it, that is on the posterior side of the flower. They, like the other parts of the flower, vary in size and form, sometimes larger sometimes smaller than the posterior sepal: they are sometimes conformable in size and shape; at others very different, as in the case of some of the *Habenarias,* where we find them divided into segments, nearly to the base: occasionally they approach the posterior sepal and combine with it to form the helmet; and in some rare instances they are wanting as in *Monomeria* (a genus I have not yet seen) and *Apetalon* (No. 1758), in such cases their absence furnishes good generic characters, and their variations, excellent specific ones.

The anterior petal or lip presents no end of variations nearly all of which are pressed into the service in the construction of genera. It is large or small; membranous and petaloid or herbaceous, or fleshy; spreading or folded, constricted or jointed in the middle, (hence hypochile for the lower half, and epichile for the upper, and mesochile for the middle); simple, entire, or variously lobed; furnished with a spur or without one; furnished with glands, hairs, plates, (lamina) or crests or plain; and lastly very generally differing either in kind or intensity of colour from the other parts of the flower. In a word, so numerous and various are the modifications of the lip that it seems quite impossible to classify them, but nearly all are employed in the description of an orchideous flower, and so constantly that any description of one without special reference to this part would be most incomplete.

The column, which is placed in the centre of the flower, is a compound body composed of the sexual apparatus of the flower cohering into a single central body. It varies considerably in form, being sometimes long, sometimes short; erect or oblique, and in the latter case often furnished at the base with a process or sort of spur to which the lip is attached and to which, when present, the lateral sepals very often cohere. It is produced by the union of the stamens and pistil, and presents several variations noted in generic characters. The apex is very generally flattened or more or less concave for the reception of the anther, whence the term *clinandrium,* or anther bed, which in such cases is applied to it.

Orchids have three stamens, but, except in a very few genera, two of these are rudimentary and only one perfect. All the three, along with the style, are usually incorporated in the column; but the posterior one only is, with the few following exceptions, perfect.

In *Cypripedium* the lateral ones are perfect, and the posterior rudimentary, and in *Euphroboscis* (No. 1732) they are all three perfect and distinct! Here also we find variations. The anther is terminal, erect, or turned down on, and very slightly adherent to, the apex of the column, or adnate; or it is dorsal, apparently owing to the elongation of the apex of the stigma, or rostellum, as it is called; or, as in the case of *Oxysepala* (No. 1736), and some others, both filament and anther are free.

The pollen, like all other parts of the flower of this curious family, is subject to modifications and, for the purposes of classification, its variations are most important. It is either powdery or granular, or composed of a definite number of little waxy masses *(Pollinia)* which on removal of the cells of the anther, or what I shall, in reference to its position, call the *anther cap,* are seen lying on the apex of the column either altogether distinct, or cohering by means of some cellular matter, forming a strap-like body *(caudicle)* through the medium of which it is connected with the stigma (placed in front of the column); sometimes the strap is furnished with, or rather adheres firmly to, a disk-like gland of the stigma, but which readily separates from it, with the caudicle. The following extract on the application of the pollen to the classification of the order, with which I shall conclude these notes, I take from Lindley's "Vegetable Kingdom."

"In classifying this order, the most important characters appear to reside in the pollen, which in many is consolidated into firm waxy masses of definite number in each species, and in others is either in its usual loose powdery condition, or is collected in granules, or small wedges, the number of which is far too great to be counted. Of those with waxy pollen masses, some *(malaxeæ)* are destitute of any visible processes by which the masses are brought into contact with the stigma; others *(Epidendreæ)* have strap-shaped caudicles which are either bent down upon the masses themselves, or serve to hold them together, without, however, forming any organized union with the stigma; while the remainder *(Vandeæ)* have a caudicle which adheres firmly to a gland found on the upper margin of the stigma, and separating freely from that organ. The genera with powdery, granular, or sutile pollen cannot be classified so conveniently by modifications of that part, but are readily divided into three natural tribes by peculiarities of the anther. In some *(Ophreæ)* the anther is erect, not hinged to the column, but continuous with it, and stands above the stigma, the pollen masses having their points directed to the base of the lobes of the anther; in others *(Arethuseæ)* the anther is hinged to the column, upon the end of which it is placed transversely like a lid; and in others *(Neotteæ)* it is also hinged to the column but is stationed at its back, so as to be nearly parallel with the stigmatic surface. If to this we add that *Cypripedeæ* have two anthers while all the others have one only, we find the order divided into seven tribes of which the following is a tabular view.

I. Anther one only.
- A. *Pollen masses waxy.*
  - *a.* No caudicle or separable stigmatic gland. — I. *Malaxeæ.*
  - *b.* A distinct caudicle, but no separable stigmatic gland. — II. *Epidendreæ.*
  - *c.* A distinct caudicle, united to a stigmatic gland — III. *Vandeæ.*
- B. *Pollen powdery, granular, or sectile.*
  - *a.* Anther terminal, erect. — IV. *Ophreæ.*
  - *b.* Anther terminal opercular. — V. *Arethuseæ.*
  - *c.* Anther dorsal. — VI. *Neotteæ.*

II. Anthers two. — VII. *Cypripedeæ.*

1622. **Oberonia Brunoniana** (R. W.), leaves ensiform, succulent, nearly as long as the raceme: stem compressed at the base, furnished near the apex with a short narrow falcate sheathing leaf or common bract: raceme compact: bracts ovate, denticulate, acute: sepals ovate, obtuse, reflexed, a little longer than the narrow lanceolate petals: lip entire, broad, cordate at the base, obtusely 3-lobed at the apex, the middle one small or sometimes obsolete. Flowers olive brown, the left somewhat darker towards the centre.

Iyamally Hills near Coimbatore, flowering June and July.

A large and handsome species; flowers large for the genus; lip and sepals dark brownish-coloured, petals pale yellowish. It appears quite distinct from all the described species, and is certainly very different from all the following. As being the most conspicuous of the genus, so far as I know it, I have taken the liberty of dedicating it to the President of the Linnean Society, the first of living Botanists.

1623. **Oberonia platycaulon** (R. W.), leaves long, narrow ensiform: stem flatly compressed, nearly as broad as the leaves: raceme lax, flowers longish pedicelled: bracts ovate, acute, the length of the ovary, fimbriate on the margin: sepals ovate, lanceolate, acute: petals linear, narrower and slightly shorter than the sepals: lip 3-lobed, lateral ones obtuse, middle larger 3-toothed, the middle one the least. Flowers whitish or pale yellow.

Pulney Mountains, flowering September. The remarkably compressed stalk of the raceme and the peculiar lip of this species easily distinguishes it from all the others represented here.

1624. **Oberonia Lindleyana** (R. W.), leaves ensiform, short, very succulent, slightly falcate: stem compressed, spike drooping towards the apex, densely covered with innumerable small sessile flowers: bracts ovate, somewhat obtuse, sub-denticulate on the margin: sepals broad, ovate, obtuse, entire: petals narrow linear: lip broad cordate at the base, crenate, two-lobed at the apex, with a minute tooth between; all furnished with numerous minute opaque glandular (?) dots. Flowers straw colour, lip dull orange.

Iyamally Hills near Coimbatore, flowering August and September.

The leaves of this species are very succulent, and with its long drooping raceme afford good distinguishing marks, which are amply confirmed by an examination of the flowers. This species is remarkable on account of the opaque gland-like points scattered over the flowers. The bract is represented too pointed in the figure. I dedicate the species to the founder of the genus.

1625. **Oberonia denticulata** (R. W.), leaves broad, ensiform, stem short, fleshy, compressed, spike very long, closely covered with minute sessile flowers: bracts ovate, serrato-dentate: sepals and petals subequal, ovate, obtuse, reflexed: lip irregularly triangular, denticulate, somewhat two-lobed at the apex, each lobe bidenticulate. Flowers dull orange colour.

Iyamally Hills near Coimbatore, flowering July and August. Of this species I have given two figures to show how it varies in size. The lip of the smaller one differs from that of the larger, but in all other respects, except in size, they seem sufficently to accord.

1626. **Oberonia verticellata** (R. W.), leaves narrow, ensiform, sub-falcate: raceme erect, or inclined, short peduncled: flowers verticelled: bracts ovate, lanceolate, acute, fimbriate on the margin: sepals short, broad, ovate, obtuse: petals sub-obovate, obtuse, longer than the sepals: lip oblong, slightly cordate at the base, 2-lobed at the apex, lobes broad, roundish, spreading, slightly crenulate on the margin. Ovary and sepals pale green, perianth dull orange.

Neilgherries, on branches of trees, flowering during the rains between July and October; also on the Pulney Mountains.

This seems a very distinct species. I at first supposed it *O. anthropophora*, but a more careful consideration of the characters of that species, led to the conviction of its being quite distinct.

1627. **Oberonia Wightiana** (Lindley in Herb. Wight), leaves broad, ensiform, acute: racemes very long drooping towards the apex: flowers scattered, short pedicelled: bracts broad ovate at the base, acute, denticulate at the apex: sepals ovate, obtuse, shorter than the linear obtuse petals: lip three-lobed, lateral lobes strap-like embracing the base of the column, middle one prolonged, ending in two obovate spathulate spreading lobes, crenulate on the margin. Flowers pale green.

Neilgherries and Pulney Mountains, flowering August and September.

The ligulate lateral lobes of the lip of this species is peculiar and at once distinguishes it from the following very nearly allied species, with which, if I mistake not, it was confounded in the first instance by Lindley.

1628. **Oberonia Arnottiana** (R. W.), leaves ensiform, sub-falcate succulent: racemes erect or slightly inclined towards the apex, scarcely drooping: flowers alternate, longish pedicelled: bracts ovate acute, ciliate, somewhat sheathing at the base: sepals ovate, acute, about the length of the narrow linear petals: lip cordate at the base, 3-lobed; lateral lobes broad ovate, obtuse, middle one prolonged, forked at the apex. Flowers pale green.

Neilgherries and Pulnies, flowering September. These two species were, I believe, mixed in the collection sent home and named as above by Dr. Lindley. Now that they are distinguished I have much pleasure in associating my friend with them by dedicating one of the two to him.

1629. **Oberonia imbricata**? (Blume), "stem simple, leafy, leaves compressed, sheathing, closely imbricated, limb of the lip ligulate, denticulate." Blume.

Malacca, Griffith.

The leaves correspond well with the above too brief and imperfect character, but scarcely the lip, which is my reason for attaching the mark of doubt to the species. Should it be found not to be Blume's plant, it might then be called—

B

O. Griffithii (R. W.), stem leafy, leaves imbricating: spike slender, drooping: bracts large, sheathing, broad ovate, denticulate: sepals broad ovate, obtuse, as long as the ovate lanceolate petals: lip broad, linear, obtuse, emarginate. The dissections of the flowers are taken from some obtained from a very young spike, the older spike, shown in the plate, is in fruit.

1630. DIENIA CYLINDROSTACHYA (Lind.), stem one-leaved: leaf ovate, obtuse: spike dense cylindrical: perianth flattened: lip excavate, thickened at the apex; nearly entire: column very short. Lind.

Simla, Countess Dalhousie—Edgeworth.

The specimen represented on the left side ofthe plate I received many years ago from the late Countess Dalhousie; for the drawing of the figures on the right side, I am indebted to Mr. Edgeworth of the Bengal Civil Service. His figure was taken from a living specimen, mine from a dried one. In some parts, especially the lip, the difference appears considerable, but I consider myself fortunate in being thus enabled by contrast, to show how much can be made of well-dried specimens. It is now upwards of 20 years since my specimen was gathered.

1631. MICROSTYLIS DISCOLOR (Lind.), stem leafy, leaves ovate, oblong, abruptly petioled, undulate, plaited: lip ovate, entire, cucullate at the base: column two-horned at the apex: sepals and petals all turned to one side.

Ceylon, flowering July.

I am indebted to the kindness of Mrs. Colonel Walker for the opportunity of representing this plant, the original very characteristic drawing being from her pencil. The insertion of the name "Govindoo" at the foot of the page is the blunder of the Lithographer.

1632. MICROSTYLIS LUTEOLA (R. W.), stem leafy at the base; leaves ovate, subcordate at the base, acute, plicate: sepals obovate, obtuse, the middle one narrower: petals linear, obtuse, emarginate: lip somewhat 2-lobed, lobes broad, spreading, fimbriato-dentate. Flowers yellow.

Ootacamund, Neilgherries, flowering August. This species is nearly allied to *M. versicolor* but is certainly distinct. It grows under the shade of bushes and among long grass on the highest peaks of the Hills.

1633. LEPARIS BILOBA (R. W.), leaves 2 or 3, ovate, acute, undulate, plicate, cucullate: raceme erect, few-flowered: sepals ovate, acute: petals narrow linear, blunt pointed: lip spreading deeply 2-lobed. Flowers dull plumb colour.

Neilgherries, nestling among moss on the branches of trees, flowering July and August. Flowers longish pedicelled in proportion to the rest of the plant. It comes very near *L. atropurpurea* but the deeply 2-lobed lip keeps it distinct.

By some accident the names of Nos. 1634 and 1635 have got transposed, I must therefore beg the favour of the reader's correcting them as follows:

1634. ERIA PUBESCENS (R. W. *E. polystachya* in Icon.), stem leafy, short, clothed at the base with sheathing scales: leaves lanceolate tapering at both ends, acute, marked with strong longitudinal veins: racemes slender, drooping; rachis and pedicels pubescent: flowers resupinate; bracts as long as the pedicels, lanceolate acuminate: sepals and petals a little longer than the lip, glabrous, falcate, attenuated towards the point, 3-nerved: lip oblong, three-nerved, sub-coriaceous at the base, contracted in the middle; limb lanceolate acute, margins membranous reflexed. Flowers white, perianth tipped with pink.

Western slopes of the Neilgherries, flowering August and September.

This species is very nearly allied to the next, but is quite distinct.

1635. ERIA POLYSTACHYA (Ach. Richard *E. pubescens* in Icon.), stem thickened pseudo-bulb-like at the base, loosely sheathed; leaves terminal, from oblong elliptical acute to obovato-elliptical, somewhat obtuse, glabrous: spikes axillary, about the length of the leaves, erect, clothed with short pubescence: bracts lanceolate acute: sepals ovate, attenuate at the point, pubescent, exceeding the lanceolate petals: lip ovate lanceolate, about half the length of the petals.

Neilgherries, western slopes,' flowering August and September.

Though my figure differs somewhat from that of M. Richard, I believe they both represent the same species, and both being taken from dried specimens may easily account for the difference. The lip, which is peculiar, and supplies a character by which this is at once distinguished from 1634, is most erroneously represented, not as regards form, but as regards proportion to the other parts, the petals especially. Had its proper proportions been preserved it would have been only about half the size. I find it most difficult, I may almost say, impossible, to teach the artist the art of preserving proportions in magnified figures.

1636. ERIA PAUCIFLORA (R. W.), cæspitose, stems erect, succulent, jointed, thickened at the apex, with a leaf at each joint, last joint thickened, tuberous, surmounted by two leaves, from between which rises the short 1- or 2-flowered raceme: leaves ovate, oblong, obtuse: flowers longish pedicelled: sepals about equal or slightly longer than the narrow linear petals: lip somewhat corrugated furnished with two lamellæ near the base. Flowers white.

Growing on moist rocks, forming dense masses exposed to the spray of the river below the Kaitie Falls, Neilgherries, flowering August and September. Flowers pure white. A very distinct and peculiar species. The stems become like pseudo-bulbs at the apex, and then flower in their season.

1637. ERIA RETICOSA (R. W.), cæspitose, stemless, pseudo-bulbs orbicular, depressed, enclosed in a net-like sack: leaves about two, elliptic, spreading: scape filiform, 1-flowered, furnished at the apex with a large somewhat boat-shaped bractea: flowers large, resupinate, expanding: sepals and petals about equal, exceeding the obscurely 3-lobed lip. Flowers pure white, lip and column yellow, bract brownish.

On branches of trees about Pycarrah in profusion, flowering in May and June, in truth it seems

to be met with more or less in flower the greater part of the year. It is a plant of great beauty when seen in perfection. Its most peculiar feature is the net enclosing the pseudo-bulbs. It is so remote in habit from the other Erias, that it was some time before I could reconcile myself to placing it in that genus.

1638. Cœlogyne nervosa (Ach. Rich.), pseudo-bulbs ovate, covered with coriaceous scales: leaves broad elliptic acute, or sub-acuminate, striated and nerved, coriaceous, usually two, sheathing at the base: scape somewhat longer than the leaves, 2–6-flowered: flowers large; bracts shorter than the flowers, ovate, acute, persistent, striated: sepals oblong-elliptic, about equal, acute: lip, like the sepals, 3-lobed, lateral lobes small, the middle one oval, lanceolate. Flowers pure white, bract reddish-brown.

Neilgherries, flowering May and June.

This when in full flower is an exceedingly handsome species, the large pure white flowers, the lip only being tinged with orange, the brownish bracts, and dark green foliage present a charming combination. It abounds on the rocks overhanging the falls at Pycarrah, also at the Avalanche. The specimen represented flowered in Coimbatore, the roots having been brought down some weeks before.

1639. Cœlogyne corrugata (R. W.), pseudo-bulbs cæspitose, ovate, reticulately corrugated: leaves oblong, elliptic, sub-acuminate: racemes about the length of the leaves, 3–6-flowered: bracts caducous or wanting: flowers large, sepals and petals conformable, oblong, ovate, acute: lip 3-lobed, lateral lobes small, middle one produced, ovate, obtuse, the claw furnished with three longitudinal undulato-crenate, coloured crests.

Courtallam, Pulney Mountains, Neilgherries, flowering August and September.

The limb of the lip is marked with orange and yellow lines like the crests, the rest of the flower is pure white. The peculiar feature of the species is the deeply corrugated, wrinked pseudo-bulbs, whence I have taken the name.

1640. Cœlogyne odoratissima (Lind), pseudo-bulbs cæspitose, ovate; leaves lanceolate, petioled, length of the 2- or 3-flowered raceme: bracts boat-shaped, divaricate, petals linear, lanceolate: lip 3-lobed, 3-crested, middle lobe undulated, orbicular, column entire. Flowers white, lip tinged with yellow.

Dodabetta, Neilgherries, on branches of trees flowering throughout the rainy season from May to October.

This very pretty species forms large masses sometimes covering continuously several feet of the branch on which it grows, covered with numerous racemes of its pure white flowers. The pseudo-bulbs are green, intermixed with sheathing scales of uniform colour. Flowers expanding, petals narrower than the sepals.

1641. Cœlogyne angustifolia (A. Richard), pseudo-bulbs aggregated, ovoid oblong, the older ones naked, the younger sheathed, one- or two-leaved at the apex: leaves linear, lanceolate, acute, channeled at the base, spotted beneath with white points: scape terminal, length of the leaves, 2–4-flowered: bracts linear, persistent, divaricate: lip erect, 3-lobed, lateral lobes oblong, obtuse, middle one larger, acute, narrower below, furnished with two sinuous longitudinal crests. Flowers white, lip tinged with yellow.

Neilgherries, on branches of trees in clumps of forest near Neddawuttim.

My figure differs so much from Richard's as to lead me to doubt their identity, especially as regards the form of the lip, acute in his, very obtuse in mine. If I have erred in naming this, it is from confounding two specimens much alike, one, but from which the flowers have all fallen, perfectly quadrates with his figure, the other, less exactly corresponding but still apparently the same, having flowers, was selected for representation and named without again carefully comparing the character throughout until copying it. Are they really distinct or does an error exist in that part of his figure? This question can, I fear, only be answered, in this country, by again obtaining fresh flowering specimens, of the more correctly corresponding form.

1642. Dendrobium filiforme (R. W.), cæspitose, pseudo-bulbs depressed, flattened, sub-orbicular, netted on the surface: leaves 2–3, ovate, oblong, somewhat obtuse, slightly cuspidate: raceme erect, filiform; few, 2–3- to many- (10–12) flowered: bracts ovate, acute, longer than the ovary; sepals much attenuated, subulate, pointed, dilated at the base, adnate to the process of the column forming a short obtuse saccate spur: petals about equaling the sepals and nearly thrice as long as the narrow ovate lip. Flowers straw colour.

Neilgherries and Iyamally Hills near Coimbatore, on branches of trees. I am also indebted to Mr. Law of Bombay for specimens from that neighbourhood, but the station not stated.

The plate exhibits three forms, all more or less differing but still evidently the same species. The bracts are more boat-shaped than represented in the drawing. The figure of the column and lip is more highly magnified than the other dissections. It is seen in nearly correct proportions in the front view of the artificially-opened flower.

1643. Dendrobium humile (R. W.), cæspitose, pseudo-bulbs ovate, covered with the sheaths of fallen leaves, leaves often wanting, when present one or two from the apex of the bulb, linear lanceolate, about the length of the scape: raceme erect, 4–8-flowered: bracts small, linear, subulate: lateral sepals acute, sub-falcate, forming with the process of the column an acute spur, posterior devaricato-lanceolate: petals lanceolate, narrower than the posterior sepal: lip large, three-lobed, middle lobe crenulate, crisp, sub-orbicular, lateral ones entire, or slightly crenate. Flowers greenish-yellow, tipped with pink, lip pink with darker crimson lines.

Iyamally Hills, on trees, flowering July and Aug.

Except that this belongs to Lindley's first section, having the pseudo-bulbs bearing the leaves, it seems to approach very near *D. denudans* and *alpestre*; from the latter it is certainly distinct, I am not quite so certain in regard to the former; the pointed divaricating spur of this species is its most striking feature.

1644. DENDROBIUM JERDONIANUM (R. W.), erect, stems jointed, thickening upwards, internodes about the length of the leaves: leaves ovate lanceolate, succulent, forked at the apex: racemes axillary, short, 2–3-flowered: bracts minute: flowers long pedicelled, calcarate, lateral sepals much produced at the base, posterior one and petals equal, all linear lanceolate, acute: lip sinuately undulated on the margin, obovate, forming with the long base of the column a short conical spur. Flowers deep orange colour, lip conforming, or a little redder.

Coorg Jungles, Jerdon. Iyamally Hills, flowering August and September.

The specimens from the two stations differ in the size of the flowers, but in both they are spurred, and have the same long narrow form and agree in colour, hence I consider them mere varieties.

1645. DENDROBIUM ALBUM (R. W.), erect, jointed: stems enlarging from the base to the apex, internodes much shorter than the leaves: leaves oblong, elliptic, acuminate: flowers axillary, paired, long peduncled: sepals ovate, acute; lateral ones falcate: petals obovato-elliptic, obtuse, larger than the posterior sepal: lip 3-lobed, lateral lobes entire, obtuse, middle one cucullate, ovate, acute, saccate at the base, ciliate. Flowers pure white.

Iyamally Hills, flowering September.

This is one of the handsomest of the genus I have yet met with, the large pure white flowers and dark foliage are very conspicuous. It seems to be rather rare, as I have only once obtained specimens.

1646. DENDROBIUM AURIUM (Lind.), stems round, pendulous, internodes short, leaves linear, oblong, obliquely emarginate at the point: flowers paired: sepals ovate, obtuse: petals undulated, obtuse, larger than the sepals: lip cucullate, limb ovate, obtuse, undulated, entire pubescent within.

Ceylon, flowering in January.

I am indebted to Mrs. Colonel Walker for the very beautiful and characteristic drawing of this handsome species.

1647. DENDROBIUM MACROSTACHYUM (Lind.), stems terete, pendulous: leaves oblong, acute, flat: flowers paired, fragrant, forming a spurious raceme: sepals linear oblong, acute, the upper sepal larger: lip unguculate, limb somewhat fiddle-shaped, silky to the touch, middle lobe elongated, acuminate, flat.

Ceylon, growing on trees, flowering in July.

In a beautifully coloured drawing of the plant here represented, the flowers are greenish-yellow coloured, with the lip and points of the sepals and petals tipped with pink.

I am indebted to the same accomplished lady, Mrs. Walker, for the drawing from which the plate is taken.

1648. DENDROBIUM RAMOSSISSINUM (R. W.), erect? ramous, lower part of the stem naked, smooth, dark shining brownish-coloured, ramuli leafy: leaves narrow, linear, lanceolate, acute: racemes terminal, short, few-flowered: flowers small: sepals ovate, lanceolate, acute, broader than the lanceolate acute, entire petals: lip oblong, obtuse, contracted near the apex, forming a sub-orbicular terminal lobe. Flowers yellow.

Coorg Jungles. Jerdon.

I only know this plant from dried specimens and it is not improbable many of the leaves have fallen off, giving it a more naked appearance in the plate than when growing. Judging from the specimens, it seems to attain a height of from 18 inches to 2 feet and is ramous from the base. It seems quite distinct from all the described species, and I have seen no other like it in India.

1649. DENDROBIUM GRAMINIFOLIUM (R. W.), rhizoma creeping, stems ascending, leafy: leaves sheathing at the base, linear, lanceolate, acute: raceme terminal, slender, 4–6-flowered, flexuose: bracts much shorter than the pedicels, ovate, acute: flowers calcarate; sepals and petals equal, acute: petals narrow, lanceolate: lip cucullate, 3-lobed; lateral lobes small, blunt, middle, orbicular crenate, somewhat crisp on the margin; claw united with the prolonged process of the column forming a conical spur.

Courtallum, August and September.

This is a grassy looking little plant from 4 to 8 inches high, flowers white. The circumstances in which it grew, whether on trees or mossy stones, was not noted, but the mode of its extension seems rather unusual in the genus; a long slender creeping jointed rhizoma, from the joints of which spring tufts of roots and an upright grass-like stem, bearing on the apex a short flexuose raceme, from the angles of which the flowers spring.

1650. BOLBOPHYLLUM NEILGHERRENSE (R. W.), rhizoma creeping, pseudo-bulbs ovate, irregularly angled, somewhat corrugated: leaves oblong, elliptic, obtuse, emarginate: spikes cylindrical, shorter than the leaves: flowers numerous, congested: bract lanceolate acute: lateral sepals much larger than the posterior, oblique; posterior broad, ovate, sub-acute: petals small, broad at the base, ovate, acuminate, sub-denticulate: lip 3-lobed, lateral ones spreading, triangular, acute, much smaller than the broad ovate obtuse, somewhat tongue-shaped, hispid middle one. Flowers dull yellowish-green.

Neilgherries and Malabar. As my specimens were obtained through the Native Collector the exact station is not known.

The drawing was unfortunately taken from a dried specimen, and does not give a very perfect idea of the inflorescence and flower, and the lip is too acute.

In the growing plant the raceme is dense and cylindrical. The sepals of a dull brownish-yellow colour, the lip broad pointed and of dirty brownish-green, sprinkled with short hairs. It is evidently very nearly allied to *B. Careyanum*, but apparently quite distinct.

1651. BOLBOPHYLLUM FUSCOPURPUREUM (R. W.), rhizoma creeping, pseudo-bulbs ovate, angular, congested: leaves broadly elliptic, contracted at both ends, emarginate: raceme much longer than the leaves, 4–6-flowered, drooping towards the apex: flowers longish pedicelled: lateral sepals about twice as large as the ovato-lanceolate posterior one: petals ovate at the base prolonged into a long filiform acumen, terminating in a little fleshy nob: lip 3-lobed, lateral lobes short obovate or sub-spathulate; middle one fleshy, nearly equaling the sepals, sub-spathulate or tongue-shaped, entire, hispid. Flowers dark reddish-brown, lip brownish-purple.

Neilgherries, on trees and rocks along the banks of the Kartairy river below Kaitie, and also below Neddawuttim on the N. western slopes, where Mr. Jerdon first detected it. The petals of this species are very unusual, and the middle lobe of the lip in the fresh plant gives so much the idea of a tongue, that I am told the "Tongue orchis" is the name by which it is known to Mrs. Jerdon.

I am indebted to the accomplished pencil of Mrs. Jerdon for the drawing; the dissections were prepared by my draftsman.

1652. Cirrhopetalum Macræi ? (Lind.), petals apiculate, naked: sepals all acuminate: leaves oblong, lanceolate, obtuse, emarginate, about the length of the scape. Lind. Flowers pale green with brownish-red veins.

Ceylon, Nuera Ellia, on trees, flowering May.

I am indebted to the kindness of Mrs. Colonel Walker for this and several other drawings of this family.

I am now doubtful whether I have correctly named this species as the figure does not very correctly correspond with the description. The lateral sepals are said to be elongated, much acuminated, and the petals falcate, a little smaller than the posterior petal neither of which is very conspicuously the case in the figure, but the flowers are said to be umbelled, a point more easily observed. Lip in this plant small, recurved, thick and fleshy. The colour of the flowers, as noted by Mrs. Walker, is "yellow-streaked and dotted with deep red." Lindley describes his as pale green with brownish-red veins.

1653. Cirrhopetalum albidum (R. W.), leaves oblong elliptic, obtuse, emarginate: flowers umbelled, scape about the length of the leaves: bracts somewhat boat-shaped, shorter than the pedicels: sepals all acuminate, posterior a little shorter than the lateral ones: petals broad, ovate, obtuse: lip short, fleshy, sub-sagittate. Flowers very pale, greenish-yellow or nearly cream colour.

On moist rocks, St. Catherine's Falls, near Kotergherry, flowering August and September.

1654. Cirrhopetalum Neilgherrense (R. W.), leaves linear, obtuse, emarginate, 3-nerved: scape shorter than the leaves: umbelled, 6–8-flowered: lateral sepals very long, broad, ovate, at the base, tapering to a point, posterior one ovate, acute, nearly twice the length of the broad, sub-obovate blunt petals: lip short, cordate, ovate, recurved, hairy on the back: prolonged base of the column pubescent within. Flowers at first pale greenish-yellow, tinged with pink, marked with darker lines, afterwards becoming reddish or light rusty coloured; process of the column red.

Kartairy below Kaitie, on moist rocks, a very pretty species, very distinct from the preceding.

1655. Cirrhopetalum fimbriatum (R. W.), leafless? pseudo-bulbs cæspitose, irregularly angular, depressed: scapes slender, erect, furnished with remote appressed scales: umbels many-flowered, orbicular, lateral sepals long linear, cohering to near the point, posterior ovate, acuminate, and, with the conformable but smaller petals, fimbriate on the margin: lip ovate, obtuse, fleshy, shorter than the petals. Lateral sepals often cohering, cream-coloured with darker lines, petals, lip, and posterior sepal, red.

Coorg Jungles, flowering January, Jerdon. The figure of this plant, though so far characteristic as readily to distinguish the species, is not, correctly speaking, a good one. It was taken from dried specimens. After the plate was struck off, I saw a much better one from the pencil of Mrs. Jerdon, and regret exceedingly that I had not seen it in time to have substituted it for this one.

It seems the most curious of the genus. The flowers all spread horizontally, and are so numerous and close set as to form a continuous circle, whence I am told Mrs. J. gave it the name of "Umbrella orchis," which had I known sooner I would have adopted.

1656. Cirrhopetalum grandiflorum (R. W.), pseudo-bulbs conical: leaf pedicelled, linear, subtruncate, emarginate: scape nearly twice the length of the leaves, 3–6-flowered: lateral sepals long, ovato-lanceolate, tapering to a point (about $1\frac{1}{3}$ inch long), posterior sepal ovate, acute, and, with the narrow almost subulate petals, ciliate: lip short, fleshy, recurved, cordato-ovate. Colour of the flower greenish, streaked and speckled with crimson, tending to purple, lip deep red, posterior sepal and petals yellowish.

Ceylon, on branches of trees, Nuera Ellia, flowering in May.

The figure and character is taken from a beautiful coloured drawing made by Mrs. Colonel Walker. She names it doubtfully, C. Macræi, which I think it can scarcely be, though agreeing in some points with the character of that species.

1657. Cirrhopetalum Walkerianum (R. W.), pseudo-bulbs ovate, surrounded at the base with brown fibrous appendages: leaf obovate, spathulate, petioled, fleshy: scape slender, erect, longer than the leaves, 3–4-flowered: lateral sepals long, narrow, subulate, pointed; posterior one ovate, acuminate, acute: petals minute, obtuse, sub-falcate: lip cordato-ovate obtuse, fleshy, recurved: upper angles of the column produced into longish lanceolate processes. Ovary and petals red; sepals yellow, streaked with shades of red, leaf light green, fleshy.

Rambaddu, Ceylon, on trees.

I have dedicated this species to the discoverers, Colonel and Mrs. Walker. The figure is taken from a coloured drawing kindly communicated by the latter, to whose accomplished pencil the Flora of Ceylon is very deeply indebted, as this work in many instances testifies.

1658. Cirrhopetalum caudatum (R. W.), pseudo-bulbs ovate, leaves from oblong elliptic to strap-shaped, obtuse, emarginate: scape filiform, clothed with sheathing scales: bracts subulate, about the length of the ovary: lateral sepals very long, ending in very long spirally convolute filiform tails; posterior one and petals about equal, ovate, obtuse, and, with the base of the lateral sepals, ciliate with remote bristly hairs: lip oval 3-crested.

Malacca, Griffith.

In the Malacca collection, communicated by the late lamented Mr. Griffith, there are two plants

coinciding in the very peculiar distinctive feature, very imperfectly represented in the figure, the long thread-like tails of the lateral sepals, but I am uncertain whether to view them as distinct species or only varieties. In appearance they differ, but that may be merely owing to difference in luxuriance or exposure of the stations where they respectively grew.

1659–60. Phajas bicolor (Lind.), stemless, scapes longer than the leaves: leaves lanceolate, acuminate: sepals and petals lanceolate, acuminate: lip cucullate, bellied, entire, limb obtuse, cuspidato-undulate on the margin, furnished towards the base with two flat plates: spur cylindrical, curved, emarginate at the apex, about the length of the ovary. Flowers yellowish, lip rose-coloured, spur yellow.

Ceylon, in pasture on the sides of hills.

I have two coloured drawings before me, both from the pencil of Mrs. Walker, in the one the colour corresponds with Lindley's description, the other has the sepals and petals purplish above, brownish pale-white beneath, the lip, externally, pale brownish-yellow, within, rose. Can the difference originate in the flowers changing colour after expansion?

This genus, so far as I am aware, has not yet been met with in the Peninsula, but as it may be expected in Malabar, I have introduced this species to make it known, if found.

1661. Arundenia bambusifolia (Lind.), lip furnished within with two fleshy undulated crested plates, and a shorter straight intermediate one: lateral lobes short, entire or sub-obsolete, middle one two-lobed, segments divaricating, crisp: petals lanceolate: leaves acuminate.

The specimens from which the drawing was made were from Ceylon, it is also found in Malabar. The above character is taken from Nepaul specimens, but seems quite in accordance with our plant.

1662. Apaturia Lindleyana (R. W.), petals linear, sub-spathulate, equaling the oblong linear lanceolate acute sepals: lateral lobes of the lip obtuse, roundish: middle one ovate, straight, with three crests extending nearly its whole length, and decurrent on the claw: the middle one thicker and higher than the others; lateral ones not marginal, bracts as long as the ovary, ovate, cucullate, acute.

Coorg, Jerdon, flowering December and January.

I almost fear this is too near Lindley's *A. senilis*, the distinctive marks being apparently very slight, but still, so far as I can gather from the brief character, they seem distinct.

1663. Ipsea spiciosa (Lind.). This is the only species of the genus yet known. A native of Ceylon.

I have also a specimen, perhaps a new species, found on the Malabar Ghauts, but have not yet sufficiently examined it. The figure is taken from a drawing by Mrs. Colonel Walker. I gathered specimens in April 1836, in company with the late Colonel Walker. The genus is said by Lindley to be very peculiar, partly on account of the species having two-lobed, fleshy roots, like those of the Ophrydeæ, a very unusual coincidence in Orchids, with waxy pollen. The figure does not exhibit that feature.

1664–65. Calanthe Perrottetii (A. Richd.), leaves petioled, elliptic, nerved, plicate, acute: scape longer than the leaves, furnished with distant sheathing scales: raceme loose: bracts ovate, lanceolate, length of the ovary: sepals and petals sub-equal, ovate, obtuse: lip 3-lobed, lateral lobes lanceolate, middle one much larger, truncately 2–3-lobed; lobes spreading; spur slender, straight, longer or about the length of the lip. Flowers light lilac, lip with a deeper tinge.

Neilgherries, frequent in clumps of forest, in moist soil, flowering July and August. I have seen it in flower in woods about Coonoor in May, but very rarely at that early season.

It is a large plant sometimes nearly four feet high, the leaves from a foot to a foot and a half long and from 4 to 6 inches broad. Flowers delicate pale lilac colour. It is perhaps too nearly allied to *C. veratrifolia*, Lindley, if indeed it be not that species, which however has a four-lobed lip.

1666. Eulophia ramentacea (Lind.), leafless: bracts subulate, shorter than the ovary: flowers erect: sepals and petals linear, spathulate, acute: lip 3-lobed, the middle lobe undulated, obtuse; plates of the disk three, broken or torn towards the point; spur obtuse, conical.

Coorg, Mysore, &c. This species is leafless when in flower; as in the case of some others, the leaves follow the flowers. The leaves here represented are those of the species but taken from a young specimen, which, apparently, had not attained sufficient maturity to flower that season.

1667–68. Eulophia macrostachya (Lind.), leaves oblong, acuminated at both ends, plaited, somewhat 3-ribbed: scape simple, radical, longer than the leaves: sepals linear, lanceolate, acuminate: petals conformable, broader, sub-undulate: lip sub-orbicular, 3-lobed, lateral lobes about the length of the shortened, deeply-cleft middle one; two short petals near the base, spur short, roundish, obtuse, inflated. Flowers greenish-yellow, lateral lobes of the lip tinged and streaked with crimson lines, the middle lobes yellow.

Neilgherries, Ceylon. The specimen represented was found in dense jungle near the banks of the stream at Burlear on the Eastern slopes. I have also specimens from Ceylon.

This is a very pretty species when seen in perfection: the lip is curious. Lindley describes the middle lobe as "alte bilobo abbreviato," but it is not cleft but rolled back as attempted to be shown in the plate. The spur is also of a very unusual shape, a little round knob at the base of the lip.

1669. Aerides Wightianum (Lind. *Vanda parviflora R. W.* in Icon.), leaves strap-shaped, oblique at the base, obtuse, 2-lobed with a tooth between: racemes straight, simple, many-flowered, longer than the leaves: sepals and petals oval, the anterior ones larger: lip funnel-shaped, lateral lobes adnate to the foot of the column, the middle one sub-cuniate, roundish, 3-lobed at the apex; disk crested with several elevated crisp lines; spur short, conical. Middle lobe of the lip deep lilac, capsules club-shaped six-angled. Flowers yellow.

Iyamally Hills, Coimbatore, flowering August and September.

The distinctive marks between *Vanda* and *Ærides* are not always very clearly defined, and when naming this drawing I was misled by its similarity to *Vanda spathulata*, and named it accordingly. I afterwards discovered my mistake and beg the reader to correct the name on the plate.

1670. Vanda Wightiana? (Lind. MSS. in Herb. Wight), leaves strap-shaped, unequally 2-lobed at the apex: peduncles much shorter than the leaves, divaricate: sepals and petals sub-spathulate, sepals all equal, larger than the petals: lip 3-lobed; lateral lobes short obtuse; middle one sub-orbicular, saccate at the base: fruit oblong, conical.

Flowers yellowish dashed with dark crimson or purplish spots, lip nearly white with a red line at the base of the lamina.

Iyamally Hills and Malabar, growing on branches of trees.

The specimen in my Herbarium, named by Lindley, is in fruit only. Had he seen flowers he would perhaps have referred it to a different genus. It seems to me to associate better with *Saccolabium papillosum* than with any species of *Vanda* with which I am acquainted. I should not therefore be surprised to find this and the following removed to that genus.

1671. Vanda pulchilla (R. W.), leaves narrow, strap-shaped, deeply 2-cleft at the apex, segments divaricate: racemes short, many-flowered: sepals and petals all equal, obovate, cuniate: lip 3-lobed, lateral lobes short, obtuse, middle one ovate fimbriated, with a large inflated sack at the base. Flowers green or yellowish, passing into white, dashed with purple.

Pendulous by its long roots from branches of trees on the banks of the Kartairy river below the falls. An exceedingly beautiful plant but I fear scarcely referable to this genus.

1672. Saccolabium papillosum (Lind.), leaves strap-shaped, obliquely cuspidate at the apex: racemes short, capitate: sepals fleshy, linear, ovate, obtuse: spur of the lip obconical, obtuse, villous within; lamina ovate, fleshy, papillose, recurved. Flowers white and tinged with yellow and purple.

Malabar, on branches of trees usually pendulous by its long roots.

1673. Saccolabium rubrum (Lind.), leaves channeled, bowed, bidentate at the apex: racemes erect, many-flowered: sepals and petals ovate, obtuse: spur of the lip cylindrical, obtuse, incurved; lamina oval, acuminate, fleshy at the apex, bicorniculate at the base. Flowers deep rose colour, leaves mottled with purple, pale on the under surface.

Neilgherries, frequent on branches of trees, flowering during the rainy season, or from May until October.

I am not sure that I understand Lindley's character of the lip, especially the "base bicorniculate," nor whether this one possesses that character. In other respects this plant seems to correspond well with the character.

1674–75. Saccolabium spiciosum (R. W.), leaves strap-shaped, obliquely emarginate at the apex: panicle large, lateral branches few-flowered, terminal one long, drooping at the apex, many-flowered: sepals broad ovato-elliptic, obtuse, petals rhombeo-spathulate: lip 3-lobed, lateral ones small sub-orbicular, furnished with a recurved plate; middle one sub-triangular, crenate, reflexed on the margins, truncate at the apex: spur tapering, shorter than the lip, hooked outwards, fruit short obconical, surmounted by the marcescent perianth. Flowers rose coloured, fining off towards the margin, lip much deeper, approaching crimson.

In forests about Paulghaut in the Malabar District, flowering July and August.

An exceedingly handsome species. The lip is nearly twice as large as the sepals, somewhat ventricose above, from the margins being recurved. The scale at the base is paler and curved backwards towards the column. It seems to form the connecting link between Ærides and Saccolabium.

1676. Saccolabium paniculatum (R. W.), leaves strap-shaped, somewhat channeled, obliquely 2-lobed at the apex: panicles racemose, many-flowered, much longer than the leaves: sepals and petals sub-orbicular, obovate obtuse: petals smaller than the sepals: lip ovate attenuate towards the point, with 2 small sub-orbicular lobes at the base, and a fleshy gland-like appendage closing the throat of the spur: spur conical, about the length of the lip. Flowers nearly white with a light tinge of pink, lip streaked with crimson.

Iyamally Hills, on branches of trees, flowering September and October.

I have another drawing before me taken from what appears a stunted less perfect specimen of the plant in which the anterior sepals are represented larger than the posterior, and all more ovate than in the accompanying plate. They agree in other respects, whence I consider it a mere variety, by which this species approaches *S. niveum*, Lind., but which is a much smaller, the leaves being only $2\frac{1}{2}$ inches long and $\frac{1}{4}$ of an inch broad. My specimen may therefore perhaps be more properly viewed as a large variety of the latter.

1677. Ærides Lindleyana (R. W.), leaves fleshy, coriaceous, sub-elliptic oblong, oblique, deeply emarginate at the apex: racemes erect, many-flowered: sepals and petals obovato-suborbicular, anterior sepals somewhat larger and, like the lip, thick and coriaceous: lip three-lobed attached to the point of the prolonged base of the column: lateral lobes small, ovate, middle one large ovate, ventricose above, crisp on the margins with a large fleshy lobe at the base, closing the spur: spur short, rigid, inflexed under the lamina: capsules large, obovate, long pedicelled. Flowers pinkish-lilac, deeper on the axis, fining off to nearly white on the margins; lip the same, but much deeper coloured.

On clefts of rocks bordering the Kartairy Falls below Kaitie, also on rocky clefts on a high hill over Coonoor, flowering nearly the whole year, at least I gathered it in April, and I have it now, Nov., in flower in pots in Coimbatore.

It is a very handsome species, worthy of being dedicated to the accomplished author of the "gen-

era and species of Orchideous plants." I had at different times two drawings made of this beautiful plant; by some accident both were, at different times, sent to the lithographer who, knowing no better, printed both. This explanation seems called for to account for the appearance of two plates of the same plant. The loss however is mine. My location, 300 miles from the press, prevented the discovery of the blunder in time to prevent it.

1678. Polystachya luteola (Hooker), spike panicled, leaves oblong, lanceolate, many-nerved, shorter than the scape: flowers and ovaries glabrous. Flowers pale yellow.

Iyamally Hills, near Coimbatore on branches of trees, flowering August and September—also on the Pulney Mountains during the rains.

Lindley places this genus in the tribe *Malaxideæ*, remarking that "the pollen masses are in reality four in number and lie loosely side by side, two in each cell of the anther," and objects to the correctness of Sir W. Hooker's figure which represents them "adhering to a common pedicel and gland, 4 in number, and not lying side by side, but upon each other." My drawing was prepared long before I knew the genus, and had the pollen exactly as represented by Hooker. Lindley's remark induced me to re-examine it in dried specimens when I found Lindley's statement correct, and unfortunately had the drawing, as I supposed, corrected. Subsequently I received living specimens of the following, No. 1679, and found that they corresponded with Hooker's figure. This led me to suspect that I had unjustly charged the artist with incorrectness of observation and had by my alteration, in that particular, spoiled my drawing, the pollen in that being truly Vandeous, that is, furnished with a caudicula and gland, and therefore placed the genus here as being its proper place. Since sending the drawing to the Lithographer, I have had another opportunity of examining the fresh pollen of this one, and find my suspicions verified, this also having a caudicula and gland.

1679. Polystachya purpurea (R. W.), spike panicled, leaves coriaceous, linear oblong, obtuse, emarginate, shorter than the scape: flowers and ovary glabrous: lip pubescent within: gland of the pollen scutelliform, orbicular, caudicula short: capsules ovoid. Flowers purplish or rather perhaps dark lilac, lip much paler.

On the top of Iyamally, a high hill about 3000 feet of elevation, with the following, on branches of trees, flowering in June, and on several subsequent occasions from the same range of hills.

1680. Diplocentrum recurvum (Lind.), "leaves folded, fleshy, recurved: racemes panicled recurved: flowers small: spurs obconical, incurved: upper sepal and petals nearly equal, anterior sepals larger, unequal-sided: lip ovate, entire, acute, much larger than the sepals; flowers deep pink, fining off on the margins to white, lip crimson.

Iyamally Hills, flowering from May to September.

It is difficult to say whether this be really Lindley's plant, but it seems to correspond with his description so far as it goes. Its actual identity can only be determined by comparison of specimens.

1681. Diplocentrum longifolium (R. W)., leaves linear, strap-shaped, channeled, obtuse, oblique, the apex emarginate: racemes axillary, erect, sparingly branched, longer than the leaves: sepals and petals ovate, nearly all equal, obtuse: lip entire, undulated, obtuse or emarginate, capsules obovate, pendulous, connectivum prolonged into a flat very obtuse appendage with the cells at the base. Sepals and petals dull brownish, tinged with pink, lip dull pinkish-lilac.

On branches of trees, Orange Valley, Neilgherries, also Iyamally Hills, flowering June and July.

1682. Diplocentrum congestum (R. W.), leaves short, sub-elliptic oblong, deeply emarginate or 2-lobed at the apex: racemes longer than leaves, axillary, sparingly branched, erect, many-flowered: flowers congested, small: sepals and petals ovate: lateral sepals oblique, larger than the petals: lip ovate, tapering, truncated at the point; connectivum of the anther prolonged, truncated at the apex: caudicula long subulate; gland very large, somewhat 2-lobed. Colour not preserved but like the preceding.

Iyamally, on branches of trees, flowering during the rainy months, July to October, rare.

1683. Æceolades tenera (Lind.), caulescent leaves oblong, fleshy, emarginate; spikes 3–4-flowered, horizontal, shorter than the leaves: posterior sepal erect, helmet-form, anterior ones leaning on the lip, equal; petals parallel to the helmet and like it; all distinct at the base: lip shorter than the sepals, three-lobed, cucullate, lateral lobes erect, emarginate, truncated; middle one fleshy, 3-lobed, flat with 2 callosities at the base: spur short, incurved. Flowers brownish-yellow with crimson points, lip white.

Nuera Ellia, Ceylon, on trees, flowering March.

This plate is taken from a drawing by Mrs. Col. Walker, with the following note attached. "Sepals and petals greenish-yellow streaked with brownish-red.—Lip fleshy, 3 outer lobes pure white, the other part yellow, streaked with pink. Column and anthers red and yellow. Leaves thick and fleshy, on some plants larger and on others smaller than here represented."

1684. Sarcanthus filiformis (R. W.), pendulous, leaves terete, filiform, spike simple, ascending, much shorter than the leaves: sepals narrow lanceolate, posterior one larger: petals ovate, orbicular, obtuse, much larger than the sepals: lip thee-lobed, lateral lobes erect, obtuse, middle one ovate, acute, reflexed; spur slightly recurved, obtuse, as long as the flower: capsule sub-cylindrical, clavate. Flowers orange-yellow streaked with darker crimson lines.

Anamally forests, pendulous from branches of trees, flowering September and October.

I am indebted to Major Cotton (Civil Engineer) for the specimens here represented. I suspect the large capsule represented does not belong to the plant.

1685. Sarcanthus roseus (R. W.), pendulous: leaves round, subulate, of very firm hard texture; racemes spicate, ascending, compact; anterior sepal lanceolate, acute, posterior one linear obtuse: petals broad, orbicular: spur of the lip straight, inflated at

the point, produced into an ovate acute fleshy plate, with a large globose callosity at the base, gland of the pollen large, capsule small, ovate. Flowers rose-coloured, petals green at the base within.

Neilgherries, pendulous from branches of decaying trees, near Neddawuttim, flowering August and September.

According to the generic character the species should have the spur $\frac{1}{2}$ two-celled within *(calcare intus $\frac{1}{2}$ biloculari)*. This character is an obscure one and not likely to be much sought after. I have however looked for it in these 2 species and, so far as I understand the author's meaning, find it wanting, but nevertheless consider both species of the genus. In No. 1747 will be found what appears to be another species, though a very different looking one, in which the spur is traversed the greater part of its length by a partition which partially divides it into two cells and is what, I suppose, Lindley means by the above phrase. If so, then it is wanting in both the above plants and, if its presence is considered indispensable to the admission of a species into the genus, both, and probably also the following (No. 1686) must be excluded. Leaving out that character, the great spur, or more properly, the saccate lip, forms a natural and easily-recognized character, but is found in other genera, as for example, in some species of *Saccolabium*.

1686. Sarcanthus Walkerianus (R. W.), erect? leaves linear, channeled, strap-shaped, very oblique and 2-lobed at the apex: raceme erect, shorter than the leaves, few-flowered: flowers long pedicelled: posterior sepal larger, galiate: spur large (lip saccate) plates of the lip nearly obsolete, the anterior one tooth-like. Flowers minute, pink with a bright green spot on the anterior lobe of the lip. The larger pollen masses red, the smaller ones yellow.

Neuera Ellia, Ceylon, on trees, flowering August.

I am indebted to Mrs. Colonel Walker for the original drawing which, as representing a form so different from the other two, I have thought it desirable to preserve.

1687–88. Cymbidium aloifolium (Swartz), leaves ensiform, coriaceous, oblique, obtuse: racemes pendulous, many-flowered: bracts minute: petals and sepals lanceolate somewhat obtuse: lip revolute, lateral lobes acute, middle one oblong, obtuse: plates interrupted, clavate, arcuate towards the base. Petals and sepals yellowish-red, lip dark lilac, tending to purple.

On branches of trees. The specimens figured were taken from the branches of a tree (recently blown down) near the foot of the Neilgherries. The raceme is here represented erect in place of pendulous, which it should have been, for want of room.

1689. Cymbidium triste (Wild. not R. W. Icon. No. 911), leaves terete (sub-cylindrical) umbels subsessile: sepals and petals connivent, fleshy, oblong, boat-shaped, lip oblong, twice the breadth of the sepals. Flowers pale pink, lip at first conformable, afterwards lilac.

Iyamally Hills, flowering September and October or probably from July till October.

After this plate was printed I had the good fortune to receive specimens, at the same time, of both this plant and that figured No. 911, and was grieved to find that I had misnamed both by transposing the names, the first error of course leading to the second. Such being the case I must request the favour of the reader's correcting the name on the plate as above, and substituting for that given with 911 the following:

911. Cymbidium tenuifolium (Wild. *C. triste* R. W. Icon.), leaves sub-cylindrical (terete): umbels sub-sessile, sepals linear obtuse, spreading, mucronate below the point; shorter than the oblong, linear, obtuse, sub-falcate petals and lip: lip oblong, concave, with three callosities on the disk, auricled at the base, membranaceous, two-lobed at the apex. Sepals yellowish-green, lip purple, streaked with paler lines.

Branches of trees, eastern slopes of the Neilgherries and Iyamally Hills, flowering from July to October.

1690. Cyrtopera fusca (R. W.), leaves long lanceolate, plicate: scape straight, many-flowered: sepals linear lanceolate, acute, longer than the broader, ovato-lanceolate petals: lip obsoletely 3-lobed, lateral lobes short roundish, middle one oblong, undulate, pointed, the disk covered with minute papillæ: base of the column prolonged, obtuse, forming with the lip a large inflated spurious spur. Sepals dull reddish-brown or lilac, ascending; petals and lip much paler.

On rocky clefts among turf in rich vegetable soil by the Kartairy Falls near Kaitie, Neilgherries. The rhizoma is very large, somewhat ovate and flattened; the scapes and flowers appear first and are succeeded by the leaves, scapes from 12 to 18 inches high, and in large specimens exceeding two feet, flowering May and June. I also saw it, but rare, on rocky clifts on the top of the high hill east of Coonoor.

It seems a very distinct species. I may here mention that a species very nearly allied to *C. flava* has been found on the Travancore hills. The only specimen I have seen was communicated by General Cullen and is given in a subsequent plate.

1691. Aceras angustifolia (Lind.), leaves linear lanceolate acuminate, spike elongated, flowers small, all looking one way (secund): petals subulate: lip pendulous, twice the length of the sepals, trifid at the apex, the middle lobe shorter, flowers greenish.

Simla, Himalayas, Countess Dalhousie.

This genus has not yet been found so far south, but as it may yet be I have taken advantage of the circumstance of my having good specimens to give a figure of the only known Indian representative of the genus.

1692. Plalanthera iantha (R. W.), stem leafy: leaves broad cordato-ovate, obtuse, stem-clasping: diminishing in size towards the apex, where they resemble large bracts: flowers axillary, solitary, sessile: posterior larger sepal and petals united, helmet-like, ovate obtuse; lateral ones falcate longer than the lanceolate acute petals: lip broad obcordate, apiculate, limb equaling the claw, pubescent at the base, spur short, conical. Flowers deep lilac, leaves similarly tinged and striated with darker lines.

Neilgherries, in pastures, flowering August and September, also in Malabar.

D

The dull purplish tinge of the leaves added to the much deeper and brighter colour of the flowers, gives a peculiar and striking aspect. It seems nearly allied to *P. obcordata*, and still more nearly to the following, but I believe them all three distinct. Is it not rather a *Gymnadenia?*

I suspect both these plants might with equal or greater propriety have been referred to *Gymnadenia*, but I confess I do not know how to distinguish them. I at first placed them in that genus and fear I have changed for the worse.

1693. Plalanthera affinis (R. W.), stem leafy: leaves ovate, acute, sessile, three-nerved: diminishing in size towards the apex: flowers small, axillary, sessile: sepals and petals galiate: posterior sepal ovate, scarcely exceeding the length of the narrower lanceolate acute petals: anterior sepals slightly exceeding the posterior: lip broad, obovate, slightly pointed, disk pubescent, claw ciliate: spur short, obtuse, inflated.

Pulney Mountains, flowering September.

The flowers of this species are much smaller and fewer, less compactly congregated, than in the other in which the apex of the stem at length almost assumes the form of a raceme, the leaves being reduced to the size of ordinary bracts.

1694. Plalanthera brachyphylla (Lind.), leaves 2, radical, fleshy, reniform, orbicular: scape clothed with acuminate scales: bracts ovate, acuminate, cucullate, as long as the flowers: sepals ovate roundish, the upper ones obtuse, the lateral ones acute, pendulous: petals smaller, ovate: lip deeply 3-cleft, shorter than the sepals, three times shorter than the clavate spur, ovary beaked. Flowers greenish-white, spur green.

The specimen represented grew on the Neilgherries, but I have repeatedly met with the plant in other localities.

1695. Peristylis Lawii (R. W.), stem loosely vaginate at the base, three or four-leaved in the middle, above naked: leaves oblong lanceolate, acute, scape exceeding the leaves, thin: sepals linear lanceolate, obtuse, narrower than the petals: lip equaling the sepals, 3-lobed at the apex, lobes all equal, or the middle one a little broader, spur short, bladdery.

Belgaum. I am indebted to Mr. Law of Bombay for my specimens of this plant.

1696. Peristylis spiralis (A. Richard), stem slender, leafless at the base, loosely vaginate: leaves 3–4 elliptico-lanceolate acute, sheathing at the base; scape above clothed with acuminate scales, passing into bracts, spike spiral, flowers small: bracts lanceolate acuminate, as long as the flowers: sepals ovate, oblong, obtuse: petals lanceolate, acute: lip saccate at the base, 3-cleft, fleshy, the middle lobe a little broader, all linear obtuse. Flowers greenish-white.

Neilgherries, in pastures, not unfrequent.

1697. Peristylis Richardianus (R. W.), stem leafy from the base: leaves ovate, lanceolate, acute, scarcely sheathing at the base: spike somewhat compact: bracts broad, ovate, acuminate, shorter than the ovary: sepals and petals equal: lip 3-lobed, lateral lobes filiform, subulate, erect, longer than the sepals; middle one short, fleshy, conical, blunt-pointed, furrowed in front, shorter than the inflated bladdery spur. Sepals green, petals and spur greenish-white.

Neilgherries, in pastures.

The aspect of the lip of this species is very peculiar, recalling to mind the head and very long horns of some of the antelope tribe. It seems very distinct from all Richard's species.

1698. Peristylis exilis (R. W.), stem naked or slightly vaginate at the base, leafy in the middle: leaves lanceolate, acuminate, acute, tapering at the base into a short petiol, slightly sheathing: scape very long and slender, furnished with a few remote scales: flowers numerous: bracts ovate, acute, about half the length of the ovary: sepals and petals ovate, bluntish, about equal: lip concave at the base, 3-lobed; lateral lobes long, filiform, acute, cirrhate at the point, middle one much shorter, straight; spur short, inflated at the apex, with a narrow neck.

Pulney Mountains, flowering September.

The whole plant varies from 15 to 20 inches in height and is very slender in proportion to its length.

1699. Peristylis robustior (R. W.), erect, lower half of the stem naked, with the exception of three or four sheathing scales: above leafy to the base of the spike: leaves 8–10, lanceolate, acute, shortly sheathing at the base: spike short, thin: bracts ovate, acuminate, very acute, nearly equaling the ovary: sepals and petals lanceolate, equal, somewhat broader towards the point: lip 3-lobed, lateral lobes filiform, pendulous, middle one subulate, much shorter; spur about the length of the sepals, bladdery at the apex, contracted above into a narrow neck.

This species is certainly very nearly allied to the former but is a stronger and larger plant, altogether more rigid; the flowers however seem nearly the same.

1700. Habenaria foliosa (A. Richard), stem leafless at the base, vaginate, sheaths loose: leaves elliptic, acute, sheathing at the base, decreasing in size above: spikes dense, bracts ovate, acute, convolute at the base, longer than the ovary: sepals ovate, the posterior one broader and shorter than the lanceolate lateral ones: petals deeply 2-cleft, anterior lobe thiner and shorter: lip 3-parted to the base; lobes filiform, subulate, equal: fleshy processes of the column long, obtuse: spur inflated, length of the ovary. Flowers greenish or dirty white, petals, especially the extremities, green.

Neilgherries, on elevated dry knolls among short stunted grass, flowering July and August.

The plant selected for representation is, for the convenience of suiting the size of the plate, a rather small one.

1701. Habenaria trinervia (R. W.), leaves cordato-ovate, acute, 3–5-nerved: raceme rather short: bracts ovate subcucullate, acuminate, longer than the flowers: sepals broad ovate, posterior one orbicular, lateral ones oblique: petals 2-parted, lobes linear, falcate, obtuse, both ascending parallel, the anterior ones shorter: lip 3-parted, lobes nearly equal, somewhat divaricate; the lateral ones broader towards the apex: spur a little shorter than the ovary, inflated. The flowers from the specimen appear yellowish-green.

Belgaum, Law.

I am indebted to Mr. Law for my only specimen of this very distinct species. It comes near *H. digitata* from which however it seems quite distinct, especially as regards the petals. The 3 centre nerves of the leaves are much more conspicuous than shown in the plate, while the exterior pair, being thin, are much less so.

1702. HABENARIA PERISTYLOIDES (R. W.), leaves few, 4–6, linear ovate, acuminate, congested near the base, scape clothed with a few ovate acuminate scales: racemes compact, short: bracts ovate, acute, about half the length of the ovary: posterior sepal ovate, obtuse, broader than the lanceolate ascending lateral ones: petals obtuse, shorter and broader than the lateral sepals: lip three-lobed, lateral lobes filiform, divaricated; middle one shorter, fleshy, ovate, pointed: spur clavate, about the length of the somewhat rostrate ovary. Flowers white, capsule oval.

Pulney Mountains, September.

The peculiar character of the lip, so completely that of *Peristyles*, at first led to the belief of this plant belonging to that genus, and has furnished the specific name.

1703–4. HABENARIA HEYNEANA (Lind., *H. Perrottetiana?* Richd.). Under No. 923 of this work I have transcribed Dr. Lindley's character of this species. The plant there represented did not quite accord with the character, but did so in so many points, as left no doubt on my mind of its being that species, it may perhaps be *H. Perrottetiana*, Richard. On going over my Herbarium, selecting materials for this work, I found numerous specimens, all more or less agreeing with the character, but none, unless perhaps E. of the accompanying plate, that seemed actually to correspond with the character, while at the same time none, except A. was deemed sufficiently distinct to admit of its being distinguished as a species. Under the impression that it was so, a specific name was assigned to that plant, but on comparing several specimens with the other forms, I soon found it difficult to draw distinctions sufficiently permanent to admit of their being considered of specific value. The size and form of the leaves varied more or less in every specimen, while the secund raceme, large cucullate ventricose acuminate bracts, more or less deeply 3-parted lip, with the curved lateral lobes and the nearly equal sepals and petals were present in all. Under these circumstances I could scarcely fail arriving at the conclusion that all the varying forms were referable to but one species; and that I have endeavoured satisfactorily to illustrate by selecting 4 of the most prominent forms and placing them side by side, in one plate. Should other Botanists think that I have erred in taking this view it affords materials for the correction of my error.

1705. HABENARIA VERIDIFLORA (R. Brown), radical leaves numerous, narrow, acute, recurved: raceme loose, many-flowered: bracts subulate, the length of the pedicels: sepals ovate: petals similar, smaller: lip 3-parted, a little longer than the sepals, lateral lobes horizontal, filiform, middle one longer: spur filiform, pendulous, the length of the ovary.

The station of this plant is not marked. The drawing was taken from a specimen named by Dr. Lindley.

1706. HABENARIA ELLIPTICA (R. W.), radical leaves elliptico-lanceolate, acute, attenuated at the base, those above bract-like, smaller, sub-cucullate, acuminate: bracts ovate, lanceolate, acuminate, acute, about the length of the ovary: raceme loose, many-flowered; flowers sub-pubescent within: sepals ovate, anterior ones reflexed, larger than the posterior one and petals: petals broad ovate, obtuse, about the length of the anterior sepals, lip 3-cleft, lobes equal: spur filiform, pendulous, the length of the ovary.

Pulney Mountains, in pastures, flowering September. The plant attains the height of from 12 to 15 inches, flowers greenish-white.

1707. HABENARIA AFFINIS (R. W.), radical leaves elliptico-lanceolate, pointed, tapering below into a short sheathing petiol, slightly undulated; stem clothed with numerous ovate much acuminated foliaceous scales: raceme many-flowered, loose: bracts shorter than the ovary, acute: sepals and petals about equal; posterior sepal galiate, anterior ones reflexed: lip 3-cleft, longer than the sepals; lateral lobes subulate, middle one narrow lanceolate: spur incurved or even hooked at the point, filiform, a little more than half the length of the ovary.

There is no station attached to this specimen, but it is my impression that I obtained it from Mr. Law from Belgaum. In the magnified figures the artist has sadly missed the proportions as regards length between the spur and ovary. The plant seems very nearly allied to *H. elliptica*, with reference to which I have given the specific name *affinis*.

1708. HABENARIA OVALIFOLIA (R. W.), radical leaves sheathing at the base, oval, acute above, attenuated below into a short petiol: stem clothed with a few distant scales: racemes lax, many-flowered: bracts ovate, acute, shorter than the ovary: sepals and petals about equal, posterior sepal and petals galiate, anterior one reflexed, deeply 3-cleft, lobes lanceolate, lateral ones reflexed, pendulous, middle one ascending, erect: spur filiform about the length of the slender ovary. Flowers a dull pale pea green.

Malabar and Anamally Hills, flowering July and August.

This plant is uniform in form but variable in size; plants from one to four feet may be met with in a single clump of specimens, for it is often found gregariously disposed. It seems very distinct from all those described by Lindley.

1709. HABENARIA PLATYPHYLLA (Spreng.), radical leaves orbicular, acute, horizontal: spike dense, many-flowered: bracts setacio-acuminate, half the length of the ovary: lip 3-toothed, middle one linear acute, lateral ones short, toothless: sepals equal: spur filiform, very long, thickened at the point.

Neilgherries, Iyamallay, and elsewhere, flowering from July to September. Flowers white.

1710. HABENARIA PLANTAGINEA (Lind.), radical leaves oblong, or oblong lanceolate, acute or obtuse, spike lax, secund: bracts membranaceous, acute, half the length of the ovary: lip three-cleft roundish, middle lobe linear, acute, the lateral ones broad, denticulate, about equal: sepals about equal, ascending: spur filiform, pendulous, longer than the beaked ovary. Flowers white, spur green.

Ceylon, Tinnevelly, Travancore, Iyamallays, Bombay and elsewhere. I have specimens from all the stations mentioned.

1711. Habenaria cepholotes (Lind. *H. trichosantha* Richd. not Lind.) leaves oblong, acuminate, channeled; raceme oblong densely many-flowered: bracts cucullate, acuminate, longer than the ovary: lip 3-lobed pubescent the middle one linear acute, the lateral ones roundish fimbriato-ciliate: upper sepal and petals converging, galiate, pubescent, anterior sepals sub-triangular, tomentose within, twice as large: spur pendulous, clavate at the apex, longer than the lip. Flowers white.

Neilgherries, not unfrequent in pastures, flowering August and September.

The tomentose lining of the lateral sepals at once distinguishes this species from all the other Indian ones I have seen.

1712. Habenaria fimbriata (R. W), stem leafy throughout: leaves ovate acuminate, channeled: raceme short, compact, many-flowered: bracts ovate, acuminate, the lower ones foliaceous, somewhat cucullate, longer than the ovary, upper ones shorter: sepals broad, ovato-cordate, obtuse, the posterior one galiate, lateral ones sub-oblique, spreading, glabrous: petals ovate, obtuse, shorter than the sepals: lip orbicular 3-lobed, middle lobe dentate, obtuse, lateral lobes broad, semi-orbicular, fimbriated on the margins, spur filiform, longer than the ovary. Flowers white.

Neilgherries, flowering during the autumnal rainy months.

In habit and general appearance this closely approaches the preceding, but the flower is very different. The raceme is not represented compact enough in the drawing.

1713. Habenaria Richardiana (R. W.), stem leafy at the base, scaly above: leaves ovate, somewhat sheathing, acute: raceme short, lax, few-flowered: bracts ovate, lanceolate, acute, membranous, shorter than the ovary, sepals ovate, posterior one shorter, galiate, acute, lateral oblique, reflexed, obtuse: petals broad, ovate, obtuse, erect, lip 3-cleft, middle lobe dentate, entire, shorter than the lanceolate diverging acute fimbriated lateral ones: spur filiform, pendulous, longer than the ovary. Flowers white, diverging from the axis.

Neilgherries, on rocky ground among grass, also on the Anamallies.

This species very nearly approaches the next in several particulars, but is, I think, quite distinct, though it grows in similar places, and even sometimes intermixed.

1714. Habenaria montana (A. Richard), leaves sheathing, oblong, lanceolate, channeled, 3–5 approximating, passing into long lanceolate much acuminated sheathing scales: raceme lax, few- (4–6) flowered: bracts oblong linear, very acute, shorter than the very long ovary: sepals glabrous, lateral ones broad, ovate, lanceolate; posterior ovate, pointed, galiate: petals lanceolate: lip trifid, middle lobe lanceolate, acute; the lateral ones broader, truncated at the apex, unequally cut: spur longer than the ovary. Flowers white.

Neilgherries, in moist rocky ground, in many localities.

Neither of the magnified figures gives a good idea of the lip of this species which is most characteristic. The one in the lower right hand corner is the nearest correct, the one above a variation. The magnified flower on the left is introduced to correct the imperfections of that given, No. 927, to which plant it belongs. That drawing was made 14 years ago, when much less conversant with the order than now, and on the supposition it was but a variety of Richard's plant, unfortunately published under his name and character. Recent investigation has led to the detection of that error which may be corrected by the reader substituting the following name and character.

927. Habenaria decipiens (R. W.), stem leafy at the base: furnished with lanceolate much acuminated acute scales: leaves linear, lanceolate, acute: raceme lax, few- 4–6-flowered, bracts ovate, lanceolate long acuminate, shorter than the ovary: posterior sepal and shorter petals converging, galiate, lateral ones larger, oblique, falcate, reflexed: lip 3-cleft, middle lobe straight, pointed, rough, shorter than the broader semi-lanceolate denticulate lateral ones: ovary attenuated at both ends, ventricose in the middle, scarcely half the length of the long filiform spur. Flowers white.

Pulney Mountains (where the drawing was made, September 1836), Malabar, Neilgherries.

The plant attains the height of from 18 inches to two feet, but is usually somewhat less. It is readily distinguished from *H. montana* by the length of the spur, a feature not sufficiently preserved in the original drawing, the want of which misled me in the first instance.

1715. Habenaria Jerdoniana (R. W.), leaves radical, orbicular, sub-cuspidate, few (two in the only specimens I have seen), scape clothed with short acute scales: spike remotely few-flowered, bracts acute: posterior sepal and converging small petals galiate, lateral ones broad, ovate, reflexed: lip much longer than the sepals, deeply 3-parted; lobes all filiform, lateral ones divaricated, horizontal, middle one shorter, straight, spur clavate, shorter than the ovary.

Malabar. Jerdon.

I am indebted to Mr. Jerdon for my only specimen, the one represented, of this very curious little plant and as being one of the most curious of the genus, I have thought it a fit subject with which to commemorate the aid I have received from him towards illustrating this interesting family.

1716. Satyrium Perrottetianum (A. Richd.), cauline leaves sessile, broad, ovate, acute, plaited, loosely sheathing at the base, diminishing above: flowers loosely spicate; bracts longer than the flowers, ovate oblong, acute, erect or oftener reflexed; lateral sepals ovate, lanceolate, acute, middle one linear oblong: petals linear, obtuse: spurs length of the ovary, stalk of the stigma (gynostem) round, longish. (Richard.) Flowers and bracts deep pink.

Neilgherries, frequent in low moist pastures.

This is a difficult genus, as the species are very apt to vary. Distinguishing specific marks have been taken from the forms of the leaves and relative lengths of the spurs and ovary. These, it appears to me, supply uncertain characters, though certainly not to be overlooked, unless combined

with others, derived from the sepals and petals, which seem, so far as I have yet had recourse to them, to furnish more constant, and upon the whole easily ascertained distinctions. On this point, however, I wish to speak with some degree of reserve, as I was not aware of their value, and did not attend so much to them as I ought, when I had an opportunity of doing so, on the growing plants, and therefore make the remark now, principally for the purpose of directing attention to these organs on the part of future investigators.

1717. SATYRIUM ALBIFLORUM (Rich.), cauline leaves ovate oblong, acute, sessile, sheathing at the base, gradually passing into ovate, acute bracts: spikes round, compact: bracts the length of the flowers, ovate oblong, acute, reflexed: lateral sepals thick, oblique, unequal sided, sub-falcate, obtuse; middle one obovate, oblong, obtuse: petals linear, obtuse: spurs length of the ovary, gynostem short; upper lip of the stigma 2-lobed; lobes, very obtuse. Flowers white, bracts greenish-red.

Neilgherries, in similar places and often intermixed with the preceding, flowering from July to September.

1718. SATYRIUM WIGHTIANUM (Lindley), stem naked at the base, sheathed: cauline leaves ovate, acute, somewhat coriaceous, sessile, loosely sheathing at the base: spike dense: bracts the length of the flowers, somewhat concave, broad, ovate, acute: lateral sepals oblique, ovate, obtuse, middle one narrower, obtuse: petals narrow obtuse, spurs shorter than the ovary: upper lip of the stigma obtuse, scarcely emarginate, gynostem short. Flowers deep pink, bracts dull lilac.

Neilgherries, with the others, and flowering at the same time.

The compact spike and small size of the flowers readily distinguish this species from the other pink-flowered ones, but the transitions are occasionally so gradual as to demand reference to other distinguishing marks for their determination.

1719. DISERIS NEILGHERRENSIS (R. W.), stem erect, 3–4-flowered; leaves cordate, acute, crenate, stem-clasping: posterior sepals and petals cohering, galiate, reflexed on the margins: lateral sepals spathulate, spreading, undulate on the margin, sub-cuspidate, pubescent at the base: lip fleshy, ascending, concealing the column, dilated, deeply 2-lobed above, below ending in an orbicular cuspidate appendage. Flowers pale reddish-white, spotted with crimson points; leaves light pea green.

Neilgherries in woods on large mossy stones, and moist loose vegetable soil. Not uncommon in the woody ravine behind Kelso Cottage. I have also met with it in other places but it is upon the whole a rare plant, flowering July and August.

An exceedingly beautiful plant and certainly difficult, as regards its analysis, to represent. *D. tripetaloides* has also been found this season in considerable abundance, near Coonoor, by the Rev. Mr. Johnson, also on the Goodaloor Ghaut, by Mr. Jerdon. Though these two have some points of resemblance they are very distinct.

1720. POGONIA CARINATA (Lind), leaf cordate, 7-nerved: scape many-flowered: lip rhomboid, somewhat 3-lobed, veined, wooly within, the middle lobe crenate.

Coorg, December and January. Jerdon.

This plant flowers before producing its solitary leaf, hence the want of that organ.

Roxburgh, who is the authority for this plant (if this is indeed his), under the name of *Epipactis carinata*, gives the following character. "Root a single simple sub-globular white bulb: leaf radical, solitary, cordate, smooth, 7-nerved: scape many-flowered: lip rhomboid sub-trilobate, middle lobe half the length of the whole, crenate: capsule oval, 6-winged." Flowers large, sepals and petals unilateral, linear lanceolate, pale green: lip with purple veins and spots on a pale greenish yellow ground: bracts ensiform, as long as the peduncle and ovary.—Roxb.

1721. CEPHALANTHERA ACUMINATA (Lind.), bracts setacious acuminate, the upper ones shorter than the ovary: upper half of the lip (epichillium) cordato-ovate, obtuse, bearded at the point, the base with five elevated lines: ovary smooth.

Simla, Himalayas, Countess Dalhousie.

I am uncertain whether this is a different species from the one from which Lindley took his character or that the character of the lip is liable to vary, as his character does not agree with my drawing. I infer the latter is the case as both of us have our specimens from the Himalayas.

1722. EPIPACTIS MACROSTACHYA (Lind.), leaves oblong, acuminate, stem-clasping, many-nerved: raceme long, many-flowered: bracts foliaceous, the lower ones double the length of the flowers: lower half of the lip (hypochillium) roundish, upper half ovate, acute, smooth at the base, shorter than the sepals.

This is a Nepaul species, but I do not think the specimen figured is from that locality, its station is unfortunately not mentioned

The specimen is evidently a very poor one, and seems scarcely to accord, in some points with the character, so that I should have hesitated about publishing it under this name had not Dr. Lindley himself so named it. But being so named, it is desirable that it should be published, for, if this is obtained from a southern station, as I believe it is, it becomes doubly interesting and the deficiency may be merely attributable to its growing in a less favourable climate.

1723. EPIPACTIS DALHOUSIÆ (R. W.), leaves cordato-obovate, acute, stem-clasping, many-nerved: raceme loose, many-flowered: bracts foliaceous, ovate, lanceolate, acuminate, the lower ones about twice the length of the flower, the upper ones shorter: lower half of the lip (hypochillium) concave, sub-inflated, upper half (epichillium) cordato-orbicular, crenate, pointed etuberculate at the base.

Simla, Countess Dalhousie.

So far as I understand Lindley's character, this is a very distinct species from all his Himalayan species.

1724. SPIRANTHES AUSTRALIS (Lind.), radical and cauline leaves linear or linear-lanceolate, obtuse or acute, sometimes ensiform: flowers spiral, glabrous, or oftener pubescent: bracts ovate, longer than the ovary: lip oblong, dilated at the apex, crisp, pubescent above. Flowers white.

Neilgherries, abundant in pastures, flowering from June till October.

E

Out of this very variable plant M. Richard has constituted two species, both of which are, I believe, included in this plate, but which, however distinct in the case of single specimens of extreme forms, are still unquestionably but one species. Lindley at one time made a third but which he afterwards reduced, viz., *S. Wightiana.* The three divisions of the plate contain 1st, (left figure) *S. Wightiana,* Lind., 2d, *S. longi spicata,* Rich., and 3d, *S. densa?* (Rich.) or perhaps the 1st and 3d may both go to form his *densa.* Richard adds a third species which I have not yet seen, viz. *S. Australis,* with purple flowers. Perhaps there is some mistake here, as it was carefully looked for this season, but in vain, but even supposing such to be found it is not by any means clear that it is a distinct species as this one varies in the colour of its flowers.

1724-*bis.* Zuxine bracteata (R. W.), erect, leaves long, narrow linear, slightly sheathing at the base, membranous: spike cylindrical, compact, many-flowered: bracts broad naviculate at the base, tapering to a long acumen, the lower ones often twice or thrice the length of the flower, with a conspicuous costa: posterior sepals and petals galiate, somewhat saccate; anterior sepals free: lip fleshy, claw long without callosities, lamina of 2 oblong, obtuse, spreading lobes. Colour unknown, but apparently white.

Syndibad, Stocks. Flowering February.

I at first supposed this *Z. sulcata,* but the form of the lip and want of callosities on the claw are adverse to that supposition. My specimens vary from 3 to 10 inches in height. The spike is scarcely represented dense enough.

1725. Zuxine brevifolia (R. W.), erect: leaves narrow, linear, acute, about twice the length of the internodes, some of the lower ones slightly sheathing: spike short, compact: bracts membranous, longer than the flowers, linear acute, posterior sepal and petals connate, galiate, convex at the base: lip fleshy, limb sub-orbicular, cuspidate, claw without callosities.

Mysore, Jerdon. Flowering December and January.

The plant is represented too large and stout and the upper leaves too large. In habit it approaches *Z. sulcata* and may be a variety of that plant but I think not.

1726. Zuxine robusta (R. W.), erect, leafy, leaves broad at the base, stem-clasping or slightly sheathing, approximated, 3-nerved, slightly coriaceous, acute: spike about half the length of the plant, bracts broad, foliaceous, longer, than the flowers, or the upper ones about equaling them: posterior sepal and lanceolate petals connate, galiate; anterior sepals free: lip fleshy, limb orbicular, claw dilated, somewhat lobed at the base: capsule short, thick, and ventricose.

Mysore, Jerdon. January.

The respective habits of these two species have not been well preserved in the drawings; nothing can be more evidently distinct than the aspect of the plants themselves, though so much alike in the figures.

The former slender and short leaved, the latter thick and stout in proportion to its size. This has partly happened owing to the tallest, not the most characteristic specimens, of each having been selected for representation. The upper leaves of the present one (1726), are too short, they having generally a tendency to lengthen as they ascend. The specimens vary from 2 to 7 or 8 inches in height.

1727. Cheirostylis flabellata (R. W. *Monochilis flabellatum,* R. W. in Icon.), leaves ovate, 3-nerved, acute, reticulately veined: scape pilose, few-flowered on the apex; lip orbicular, limb spreading, deeply 2-cleft, lobes digitately 4–5-cleft, claw with two callosities at the base: column furnished in front with four arm-like processes. Flowers white, leaves brown, tinged with pale red, and reticulated with darker coloured veins.

Kartairy Falls, Neilgherries, among decaying leaves in the wood at the bottom of the Falls, flowering in February. It has since been found by the Rev. Edmund Johnson, flowering in November, near Coonoor.

I inadvertently overlooked the union of the sepals when originally naming this plant and referred it to the neighbouring genus *Monochilus,* an oversight which I must beg the favour of the reader to correct. The lip of this species differs a little from the character of the genus but not enough to entitle it to a new generic denomination.

The pollen which the draftsman has represented as cleft, solid pollinia, is granular. The lip in æstivation is curiously rolled inwards, and is inclosed within the tube of the sepals. The number of flowers on each scape is from 4 to 8; petals pure white, the ovary green.

1728. Monochilus affine (Lind), stem pilose, leaves ovate, petioled, nerved: scape furnished with some sheathing scales: spike secund, few-flowered, bracts roundish, cucullate, acuminate, membranaceous, as long as the pubescent ovary: sepals ovate, acute, petals rounded at the apex: lobes of the lip oblong, coarsely crenate, with two involute, subulate callosities. Flowers white.

Courtallum, in dense woods, flowering August and September. It was part of the specimens collected when this drawing was made to which Lindley refers and any discrepancies that may be remarked between the character and the figure is attributable to the one being taken from recent the other from dried specimens.

1729. Goodyera procera (Hooker), caulescent, glabrous, leaves lanceolate, acuminate, shorter than the scape: spike long, dense, cylindrical: bracts ovate, acuminate, longer than the ovary: flowers sub-globose: sepals and petals roundish, convex, obtuse: lip bellied, the apex with a callous point, hairy within, the upper angles of the column acuminate. Flowers white, anther red.

Burlear, Eastern slopes of the Neilgherries, on the banks of a stream, flowering July and August. I have found it at different seasons. It is a widely diffused plant. I have gathered it on the Neilgherries, Courtallam, Malabar and Ceylon, and have specimens from other places.

1730. Goodyera ovalifolia (R. W.), roots repent, leaves ovate acuminate or oftener a, nearly, perfect oval, with a short point; petiol about half the length of the limb, dilated, sheathing at the base: spikes long, slender, thinish (subrara), pubescent: lower bracts as long as the ovaries acute, sepals somewhat pubescent, ovate, acute, the posterior one

and linear petals galiate: lip shorter than the superposed lateral sepals, 3-toothed at the point, furnished within with a fimbriated appendage: ovary cylindrical, pilose. Flowers appear white within the sepals, exteriorly with a reddish tinge, leaves often tinged with purple.

Courtallum, in dense forest, flowering August and September.

It appears to come near *G. elongata*, Lind., but he seems uncertain whether that really belongs to the genus. This I consider a true species.

1731. Anæctochilus setaceus (Blume), leaves coloured, ovate or oval acute, two-coloured: spike straight, few-flowered, and, like the sepals, pubescent, lip many-cleft, bristle like on the margins, rounded at the base with a conical emarginate sack. Sepals greenish-white, edged and tipped with red; lip white: leaves dark brown or even black, traversed with netted golden-coloured veins.

Ceylon, abundant in shady woods about Kandy.

I am indebted to Mrs. Colonel Walker for the drawing, and with it the opportunity of making known the genus to the readers of this work.

Euphrobosces (Griffith).

Gen. Char. Perianth posticous, connivent, fleshy. Sepals linear, oblong, lateral ones keeled. Petals narrow, lanceolate, (reflexed at the apex). Lip simple entire, semi-convolute, continuous with the oblique base of the column. Column vertical, attenuated in front into a long two-legged rostellum (antice in rostellum bicrue longum attenuatum), stigma vertical. Anther dorsal, beaked. Pollinia 8, waxy, globose; with a long caudicula and linear gland.

Epiphytical cæspitose plants, pseudo-bulbs turbinate, the new ones 3–4-leaved: leaves fleshy, oblong, emarginate: scape sub-clavate, erect: flowers spiked, one-bracteate minute, greenish. Griffith, Calcutta Journal of Nat. History, Vol. 5, 371–72.

I have thought it advisable to give Griffith's character in full, as I find it does not correspond with my dissections, though in other respects the plant seems identical. The following are the notes I made while examining this plant.

Perianth connivent, six-parted in 2 rows, exterior series, sepals, larger, the anterior pair carinately winged on the back; interior series, petals, somewhat smaller, sub-lanceolate, anterior one, lip, 3-nerved. Stamens 3, sessile, opposite the sepals, each containing 8 globose waxy pollinia, attached to a long slender caudicula furnished with a linear gland. Column very short (even with the base of the petals and stamens) with a forked rostellum as long as the anthers and to the apex of which, in course of time, the glands of the caudicula become attached. Ovary 1-celled, placentiferous margins revolute, free within the cell.

Comparing this with the dissections, two discrepancies will be remarked. The stamen at No. 7, is represented as double each half with a caudicula and four pollinia, and secondly the detached pollen has only 4 masses to the caudicula. In both respects the drawing is wrong, as will be at once observed on comparing fig. 7 with the anthers of figure 6, which are correctly shown 1-celled, but dilated and ventricose below to enclose the large pollinia. In other respects the drawing is correct.

According to Mr. Griffith's character, there is only one perfect stamen, "Anther parallel with the column, dorsal, fleshy, prolonged into a long beak." In place of one, I find three such anthers. Can it be that, as compared with mine, his plants were to that extent deficient, or were the anterior anthers overlooked in a hurried dissection. In either case it is extraordinary, first, as it seems improbable that two plants to all appearance so perfectly identical, should differ so widely in so essential an organ; and secondly, it seems about equally improbable that such an accurate observer as Griffith should commit such an oversight. But considering the former the more improbable of the two, I may remark that this seems one of the most curious of Orchideous plants. It has 3 perfect stamens furnished with ceraceous pollen and these attached to a caudicula and gland like those of Vandeæ. Lindley rejects *Apostasia* as a genus of Orchideæ; this seems an equally anomalous plant; can it also be similarly rejected so as in that way to preserve the symmetry of the order? For myself I think not.

1732. Euphrobosces pigmæa (Griffith).

The specimens from which the plant was first described were from Nepaul, and flowered in the Botanic Garden at Calcutta. Those from which my drawing was taken were gathered by Mr. Jerdon on the Malabar Ghauts.

1733. Mycaranthes stricta (Lind), stem terete: spike secund, dense, many-flowered: lip with a scrotiform callosity in the middle: perianth woolly, short, margins of the column winged, introflexed: leaves 1 or 2 linear lanceolate, sessile.

The specimen figured was communicated by the late excellent Mr. Griffith from Malacca. He also furnished me with others from Mergui, Assam, and Khassia.

1734. Phreatea uniflora (R. W.), repent, pseudo-bulbs globose, about 2-leaved: leaves obovate, cuspidate: scape longer than the leaves, 1-flowered: bract large, cordato-ovate, acuminate: lip lanceolate acuminate, 2-nerved.

Khassia Hills and Chunassangi, Griffith. I only know this genus from the specimen figured.

1735. Liparis elliptica (R. W.), pseudo-bulbs oval, compressed, costate on one side, 2-edged, truncated at the apex, 2-leaved: leaves elliptic, cuspidate, nerved, sub-plicate, about half the length of the scape: scape sub-erect, raceme many-flowered: bracts ovate, subulate, about the length of the ovary: sepals sub-equal, ovato-elliptic, cuspidate, petals narrow, linear, pointed: lip irregularly 3-lobed: lobes undulated, pointed, the middle one larger. Flowers greenish-yellow, approaching to straw-colour.

On branches of trees about Coonoor, Neilgherries. Flowering from August to October.

This species seems very nearly allied to *L. viridiflora* of Ceylon. The pseudo-bulbs are naked, fleshy, costate on one side, two-edged—i. e. tapering off towards each side. Fig. 10. of the plate is a transverse section of the pseudo-bulbs.

Oxysepala (R. W.).

Gen. Char. Sepals equal, ovate, long subulato-acuminate, sub-connate at the base. Petals narrow,

linear, obtuse, scarcely half the length of the sepals. Lip unguiculate, cordato-lanceolate, entire, ecalcarate, articulated with the prolonged base of the short column. Stamen posterior, free to near the base, anther globose, 2-celled, supported by the distinct, fleshy, subulate filament. Pollinia 2, waxy, globose. Scandent, ramous, jointed epiphytes; stems clothed with sheathing scariose scales from beneath which the flowers protrude. Pseudo-bulbs scattered on the branches, 1-leaved. Leaves obovato-elliptic obtuse, emarginate, coriaceous. Flowers short pedicelled, one or two from each scale covered at the base with minute scales and furnished at the apex with a large, somewhat boat-shaped, ovate bract. Sepals membranous (in dried specimens translucent), much attenuated towards the point.

This is an interesting plant from its so clearly explaining the structure of the column of orchideous plants, through the separation of the stamen from the stigma. In most orchids these two sexual organs are united into a single body, with the variously formed anther lying on the top. Here the two sets of organs are respectively free and distinct, as in other bi-sexual flowers. I cannot refer it to any existing genus, though I think it approaches *Cochlia* in some points, which however has not, so far as I can learn from the character, the free stamen of my plant.

1736. Oxysepala ovalifolia (R. W.).
I am indebted to the late Mr. Griffith for my specimens of this very curious plant which I think were gathered in Malacca but unfortunately the label is lost. They may have been from Khassya. They are from one or other of these stations.

Aggeianthus (R. W.).

Gen. Char. Sepals equal, cohering, tubular; the lateral ones connate with the prolonged base of the column. Petals shorter than the sepals, spathulate, unguiculate, inclosed within the tube of the calyx. Lip articulated with the prolonged base of the column, broad ovate rounded, papilosely hispid at the apex, truncated and furnished at the base with a subulate tooth-like process, three-nerved in the axis. Column erect, concave above. Anther 2-celled, cells obsoletely 4-celled with 4, or by abortion? fewer obovate pollinia in each. Stemless plants, pseudo-bulbs aggregated, depress-flattened, netted all over; leaves small, 2–5, sheathing, ovate, acute, membranous: bracts sub-orbicular, cuspidate, parallely many-nerved: flowers tubular, vase-shaped (whence the name) dull brick-red colour, externally glabrous, pilose within: petals obovate, spathulate with a longish claw, pubescent: the lip when spread out is somewhat trowel-shaped at the base and orbicular at the point.

The thorn-like process at the base of the lip, not well shown in the figure, is very peculiar. The number of pollinia seems inconstant as shown in the two figures, 12 and 13, and I have seen as few as four, always presenting the spathulate outline shown in the plate. Fig. 14 was introduced by the artist, without reference to me on the supposition that it was the kai (fruit) the usual form of which in the order it does not much resemble, but which it may be. As I did not see it, I thought it best to retain it when preparing the drawing for transmission to the press.

1737. Aggeianthus marchantioides (R. W.).
Growing in broad patches somewhat resembling a Marchantia (which suggested the specific name) on moist rocks on the Iyamallay Hills towards Paulghat. Flowering July and August.

Lichinora (R. W.).

Gen. Char. Sepals adhering at the base, posterior one larger, somewhat galiate; lateral ones connate with the prolonged base of the column, ovate, obtuse: petals linear, lanceolate, shorter than the sepals: lip sub-rhombio-ovate acutish, articulated with the long base of the column. Anther terminal, 2-celled, with 4 pollinia in each. Stemless plants; pseudo-bulbs thin, flat, adhering like lichens to the branch on which they grow (whence the name), leaves paired, broad ovate, sub-orbicular, cuspidato-pointed, reticulately veined, large in proportion to the rest of the plant, glabrous: flowers axillary, paired, short pedicelled, hairy: bract obovate, somewhat boat-shaped, densely ciliate, lateral sepals hairy within.

I am indebted to Mrs. Jerdon for the drawing from which figures 1, 2, and 3 are taken, 1 and 2 show the plant natural size, and 3 considerably magnified. Along with the drawing I received specimens preserved in spirits, from which the dissections were made. Figs. 5 and 6 do not seem to correspond, which however is attributable to the want of skill in the artist in representing two different stages of dissection, and the number of specimens was too limited to admit of several flowers being examined. Leaves at first green afterwards changing to purplish brown. Flowers tawny coloured.

1738. Lichinora Jerdoniana (R. W.).
Malabar Mountains, on branches of trees. Flowering ————————. Jerdon.

1739. Spathoglottis pubescens (Lind.), leaves binate linear, lanceolate, narrow at the base, striated, shorter than the erect scape: raceme secund, bracteate: bracts minute, acute: sepals ovate acute: petals oblong: lip saccate at the base, the lateral lobes oblong, erect, middle one with 3 keel-like appendages, two tubercles at the base, cuniate, and a little longer: peduncles, sepals, and ovary pubescent.

Khassya Hills. Griffith.

The dried specimens from which the drawing was made are very indifferent ones but as being the only representatives of the genus I have, were employed to illustrate it for the sake of those Indian Botanists who might not otherwise have an opportunity of making themselves acquainted with its aspect and characters.

Broomheadia (Lindley).

Gen. Char. Perianth cylindrical, connivent ($1\frac{1}{2}$ inch long, white). Sepals and petals linear, oblong, channeled, curved. Lip cucullate, 3-lobed, articulated with the base of the parallel column, lobes retuse, yellow with yellow glands in the disk, the lateral ones shorter, ovate, (violet-coloured) the axis pubescent, column fleshy, broadly winged, obtuse. Anther 2-celled, dehiscing longitudinally, the back conical, articulated with the column. Pollinia two, reniform, excavated behind, sessile on a broad triangular

membranaceous gland. Bulbless caulescent epiphytes, leaves in two rows (distichous) narrow emarginate: spike terminal, distichous, flexuose, long peduncled, many-flowered, bracts tooth-like very short, rigid.

This character is copied from the commentaries of Meisner's Genera Plantarum, page 289–90, which had I not had the aid of Mr. Griffith's name would have left me in doubt whether this was truly Lindley's plant, nor can I feel quite certain, even with such aid, that it is so, as I have not seen his own description which is published in the Botanical Register, not in his genera and species. Like the preceding, the plant is introduced for the sake of the genus, being desirous of exhibiting figures of as many genera as I can of this very difficult order.

1740. Boomheadia palustris (Lindley), *Gramatophyllum Finlaysonianum*, Lind. gen. and species orchid.

Malacca. Griffith.

This, though the habit and general aspect of the plant seems to agree, may not be the true *B. palustris* as I find I have what appears another species of the genus, but the specimens are too imperfect to be determined with certainty.

1741. Chiloschista usnioides (Lind.).

Malabar, on branches of trees, flowering in April. —Low herbaceous, hairy, leafless, epiphytes: roots flattened, green, as if to supply the absence of leaves by performing their functions. Spikes erect, flowers whitish or somewhat cream-coloured. The lip of this plant is curious and difficult to represent. I am not sure that this is the species named, but I have no means of satisfying myself on that point.

The larger figure of the plate was taken from dried specimens collected by myself, the smaller from a drawing of Mrs. Jerdon, taken from a living plant, gathered I think in Wynaud and on the North Western slopes of the Neilgherries.

Josephia (R. W.).

Gen. Char. Perianth globose, closed. Sepals equal, ovate, sub-orbicular, lateral ones incumbent on the lip. Petals obovate, oblong, obtuse, a little shorter than the sepals. Lip connate with the base of the column, fleshy, ventricose at the base, ecalcarate, constricted in the middle; limb entire, sub-orbicular, emarginate. Column erect, clavate, half round. Anther imperfectly 2-celled. Pollinia 4, parallel, oblong, clavate, sessile on the dilated shield-like gland.

Epiphytic plants: leaves coriaceous, long petioled: scapes erect, panicled, many-flowered: flowers congested towards the ends of the branches, pedicelled and furnished with a minute ovate, acute, persistent bract. The flowers in this curious genus are annually renewed on the old scapes.—This fact I learn from Mr. Jerdon who has had it in cultivation for three years.

I have named this genus in honour of my esteemed friend Dr. Joseph Dalton Hooker, author of the Antartic Flora and Rhododendrons of Sikkim; now engaged in investigating the Flora of the Sikkim and Khassia portions of the Himalayan range where he has already collected about 3000 species of plants, and certainly one of the most rising Botanists of the present time. The genus seems nearly allied to Agrostophyllum, but appears distinct in habit, character, and Geographical distribution—the one species being a native of the Neilgherries the other of the Pulney Mountains, while the only known species of Blume's genus is from Java.

1742. Josephia lanceolata (R. W.), leaves elliptico-lanceolate, acute at both ends: scapes a little longer than the leaves, naked, panicled; branches of the panicle racemose: all the sepals sub-orbicular: lip emarginate. Flowers whitish, tinged with purple, lip reddish lilac.

Branches of trees below Nedawuttim, Neilgherries, flowering August and September.

1743. Josephia latifolia (R. W.), leaves coriaceous, broad oval, very obtuse or round above, tapering below into the longish sulcated petiol: scape panicled, about twice the length of the leaves, scaly, branches of the panicle short: flowers congested, subcapitate.

Pulney Mountains, on branches of trees, flowering August and September.

The annalysis of this species is less complete than the preceding, having been made long ago (about 14 years), at a time when I was very imperfectly acquainted with this family.

1744. Ærides cylindricum (Lind.), leaves round, somewhat cylindrical: racemes short, about two-flowered, sepals ovate, obtuse: petals oblong, broader: lip cucullate, funnel-shaped, lateral lobes oblong, obtuse; adnate to the middle, ovate, obtuse, fleshy, middle one: spur straight, conical. Flowers white or slightly tinged with red, lip reddish, middle lobe yellow at the base.

Iyamally Hills, Coimbatore, on branches of trees, flowering August and September. The flowers of this species are handsome, but too few to entitle it to be considered an ornamental plant.

1745–46. Saccolabium guttatum (Lind.), leaves long, channeled, unequally truncate, broad: racemes cylindrical, densely flowered, arched or pendulous: sepals ovate, twice the breadth of the petals: lip with a compressed truncated conical spur, pubescent within, lamina lanceolate, inflexed, sub-costate on the back, capsules oblong, hexagonal.—Lind.

Paulghaut jungles, on branches of trees. Flowering from June till October or longer.

On comparing the character, here given, of the lip with that shown in the magnified analyses a striking discrepancy will be at once observed; the lamina in Lindley's plant being "lanceolate inflexed," in mine it is broad obcordate, cuniate, spreading. For his plant he quotes Rheede's Hort. Mal. 12 tab. 1. When naming my drawing, I referred to that plate and, finding the two figures correspond, was so unfortunate as to rest satisfied without comparing my plant with the character and thereby overlooked that striking difference.

It is now clear to me, that the plant seen and described by Dr. Lindley is not Rheede's plant, and that they are probably different species. On this supposition I propose to designate this plant *S. Rheedii*, with the following character.

Saccolabium Rheedii (R. W.), leaves linear, channeled, denticulato-truncated or premorse at the apex: racemes pendulous, densely many-flowered: posterior sepal ovate, lateral ones unequal sided, about twice the breadth of the lanceolate acute petals: spur saccate, compressed, conical, hairy on

F

the throat, lamina of the lip broad, obcordato-cuniate, spreading: capsules obovate, subterete. Flowers pale pink dotted with deeper coloured spots: lip deeper pink.

1747. Sarcanthus pauciflorus (R. W.), leaves linear, acute: spikes simple, pendulous, few-flowered, much shorter than the leaves: sepals obovate, acute, or somewhat boat-shaped, inflexed on the margins: petals narrower, obovato-lanceolate: spur infundibuliform, conical, curved outwards: lamina of the lip 3-lobed; lobes all obtuse, the middle one much larger. Sepals pale yellow with a red margin, lip white or slightly tinged with yellow.

Malabar, on branches of trees. Jerdon.

I am indebted to Mr. Jerdon for specimens and a coloured sketch of this plant which I thought it well to introduce here as affording an example of what appears a true *Sarcanthus* which those already figured under that name may not be considered, though, as I understand the genus, I believe they are.

1748. Owing to an error in numbering, this plate was left vacant and the omission not detected until the whole of the plates of the part were printed off. I have therefore taken advantage of the circumstance to introduce to the acquaintance of my readers, 4 additional genera, with which I have myself in the interval, become acquainted.

1748-1. Acriopsis Indica (R. W.), lip ovate, cordate, somewhat undulated, entire, without a crest.

A. Javanica (Blume), "labellum basi columnæ in tubum connatum, limbo patente *cordato cristato*."

The habitat of my plant is most unfortunately not noted, and the specimen is not perfect enough to admit of my enlarging on the points of distinction between this and the Java species. The genus is a very curious one. The two lateral sepals are united hence the perianth, exclusive of the lip, is only 4-leaved. The lip, in place of being free to the insertion, has a long furrowed claw, the edges of which adhere to the column leaving a tube between. The anther bed in place of presenting the usual form of a simply flattened or concave surface on the end of the column, on which the naked anther lies, is covered by a delicate vaulted membrane or veil, within which the anther nestles but is still visible, through its translucent texture, in the way I have endeavoured to show in the magnified figure No. 4, and also in No. 2.

1748-2. Podochilus malabaricus (R. W.), leaves short, fleshy, imbricating, obtuse: spikes terminal, short, few-flowered, drooping: bracts broad ovate, somewhat cuspidate, shorter than the ovary: petals somewhat narrower than the sepals, lanceolate: lateral sepals connate, forming a short ventricose spurious spur: lip entire constricted in the middle, upper half linear lanceolate, obtuse.

Malabar, on branches of trees, flowering during the rainy months. I am indebted to Mr. Jerdon for the opportunity of figuring this plant which is the first species of the genus found in Southern India. Two species, both (but especially *P. falcatus)* nearly allied, are natives of Ceylon.

1748-3. Appendicula Hasseltii (Blume), stems simple, terete: leaves broadly linear, retusely mucronulate, sheaths of the leaves edentulate: limb of the lip erect, crenulate.

Mergui, Griffith. I am indebted to the late Mr. Griffith for my only specimen of this plant. It is not improbable that it may not be identical with Blume's plant which is from Java, but as it seems to correspond with his character, I cannot on the mere ground of a geographical difference venture to view it as a new species. His characters are generally too brief but, so far as it goes, the two plants agree. It is proper to remark that the figure of the entire plant is somewhat reduced to bring it within my contracted space, to which I may add that most of the flowers of the capitulum were so far advanced that I had considerable difficulty in obtaining one fit for dissection, but still I hope that the analysis will on comparison with more favourable specimens be found correct.

1748-4. Zosterostylis Walkeræ (R. W.), lip ovate, lanceolate, involute on the margins, slightly pubescent; sepals linear or somewhat subulate, the lateral ones narrower: leaves ovate, acute, reticulately veined.

Adam's Peak, Ceylon. Gardner.

Of this plant I have a coloured drawing by Mrs. Col. Walker, and a specimen collected by the late Mr. Gardner, but communicated by Mr. Thwaites. The drawing is unfortunately without analyses those given therefore are prepared from the dried specimen and may not be found quite correct. The lip is reddish-purple; the sepals as green nearly as the leaves, the scape reddish-green. It seems very neary allied to *Z. zeylanica*, Lind., but that has 3-nerved leaves, which this certainly has not; the lip in that is tomentose within and revolute on the margin, while in this, it is scarcely pilose and involute; neither, so far as is shown in the drawing, is it punctulate. The genus is an obscure one, and I doubt whether my dissections are sufficient to remove the difficulties, the more so as there is apparently a discrepancy between figures 2 and 3.

1749. Bolbophyllum tremulum (R. W.), pseudobulbs ovate, somewhat corrugated, leaf ovate, lanceolate acute: scape straight: bracts small, ovate, acute: sepals ovato-lanceolate acute, pubescent: petals rhombio-ovate small, densely ciliate: lip articulated with the prolonged base of the column, linear, obtuse, the back toward the apex, covered with long tremulous hairs. Flowers yellow, passing into purple towards the margins of the sepals; lip purple.

Wynaud on trees, Jerdon and Major Cotton, who now has this species, with very many others, growing in his conservatory at Ootacamund. The specific name is in allusion to the long hairs on the back of the lip, which, when growing, are perpetually in a state of tremulous motion however still the air. It is a beautiful and curious plant, allied by the peculiarity of its lip to *B. Calamaria* a Sierra Leone plant.

The figure of the whole plant is taken from a coloured drawing of Mrs. Jerdon's. All the analyses were prepared from a specimen preserved in spirits communicated by Mr. Jerdon. The hairs of the lip are jointed at the base (hence their mobility) as may be seen from the linear figure in the centre of the plate.

Pattonia (R. W.).

Perianth spreading, posterior sepal boat-shaped (cymbiform) acute, undulated on the margin; ante-

rior ones slightly larger. Petals conformable, obovate-obtuse, cuniate towards the base. Lip articulated with the base of the column, 3-crested on the disk, 3-lobed; middle lobe oval inflexed at the point, lateral ones sub-falcate, obtuse, with a broad sinus between them and the middle one. Column somewhat oblique, clavate, concave and slightly winged in front. Anther terminal, 2-celled; pollinia 2, globose. Terrestrial caulescent herbs apparently of large size: root——? leaves long narrow channeled, folded, bowed towards the point: stems erect, round, terminating in a long loose many-flowered raceme: bracts ovate, acute, deciduous: flowers large (about 3 inches across) long pedicelled: sepals and petals glabrous, lip hairy within. The plant turns black in drying and appears to attain a great size, a portion of the stem of my specimen measuring upwards of 2 inches in circumference.

This genus is dedicated to Mrs. Colonel Walker, under her maiden name Patton (the better known one of Walker being pre-occupied), a compliment well merited in return for the many contributions from her accomplished pencil illustrative of the Flora of Ceylon. I formerly so named a genus of Anonaceæ, in my Illustrations, but further and more intimate acquaintance with that plant has satisfied me that the genus rests on imperfect observation and is untenable. I therefore suppress it in favour of the present, which I trust will be found more permanent, as it is more suitable, being an orchid, the family she has most delighted to study and delineate.

1750. Pattonia macrantha (R. W.).
Malacca. Griffith.

The specimens are unaccompanied with any note or label. I should suppose, from their appearance, that it grows in humid or marshy soil, attains a height of 4 or 5 feet, and that the racemes are nearly half that length. The stems are glabrous, somewhat 4-sided, slightly channeled on two sides, the leaves are about a foot and half long, folded, tapering to a point and, when growing, are probably sword-shaped.

The colour of the flowers is unknown to me.

1751–52. Cytheris Griffithii (R. W.), scape erect, hairy, many-flowered: leaves . . . . . bracts ovato-lanceolate, acute, externally hairy: spur slender annularly involute: lip spreading, 3-lobed; lateral lobes obtuse smaller than the dilated obcordate middle one.—Pseudo-bulb ovate; scape from $1\frac{1}{2}$ to 2 feet high, furnished towards the base with a few sheathing scales: flowers large, pedicels slender longer than the bracts. There are no leaves attached to the specimen. They seem to come after flowering.

Mergui. Griffith.

This is a very distinct species from *C. cordifolia*, Lindley, which has a slender stem about a span high small flowers and a short clavate obtuse spur.

The detached magnified flowers seem at variance with the attached ones appearing as if the lip was *anticous* while in the others it is *posticous*. The error rests with the artist and which, in the hurry of other occupations, I overlooked.

1753. Cymbidum erectum (R. W.), leaves ligulate, succulent, rigid, deeply and obliquely emarginate: raceme erect, many-flowered: bracts small, fleshy: sepals linear, somewhat obtuse; narrower than the lanceolate acute petals: lip 3-lobed, middle one pubescent and revolute at the apex, lateral ones acute; lamellæ linear, straight.

Iyamally Hills, near Coimbatore, flowering in August and September.

This species belongs to Lindley's section *Eucymbidium* and approaches *C. aloifolium* but is evidently a very distinct species. Its erect rigid habit, thick fleshy ligulate leaves, broad short scales at the foot of the scape, at once proclaim it distinct. The colour of the flowers, is nearly the same in both, a blending of reddish and yellow deepening nearly to purple along the middle line; limb of the lip purplish red, yellowish near the base.

1754. Cyrtopera Cullenii (R. W.), leaves oblong, lanceolate acute, plaited: scape slender, angular, somewhat drooping towards the apex; flowers numerous, loosely racemed, long pedicelled, bracts ovato-subulate; sepals obovato-lanceolate, narrower than the obovate very obtuse petals: lip 3-lobed, middle one somewhat smaller, 3-crested.

Travancore, flowering during the rains.

I am indebted to General Cullen, Resident of Travancore, for my specimens of this gorgeous plant. It is nearly allied to *C. flava*, with which I at first confounded it. Like it the flowers are yellow and the scape appears before the leaves, but the appearance of the plant so far as I can learn from comparison with Dr. Royles figure is altogether different. On these grounds I have dedicated it to the discoverer, a zealous investigator of the plants of that tract of country but more especially of the economical applications of the useful ones. The plant seems to be a large one some of the leaves being nearly 2 feet in length.

Cottonia (R. W.).

Gen. Char. Perianth spreading. Sepals broad obovate, obtuse. Petals smaller, sub-lanceolato-cuniate at the base. Lip ecalcarate constricted in the middle, sub-panduriform; upper half larger sub-orbicular, emarginate, cuspidate in the sinus; lower half orbicular bituberculate at the base. Column erect, clavate, margins dilated, membranous in front. Anther 2-celled, with a long blunt rostellum. Pollinia 2, unequally 2-lobed, posterior lobes smaller; caudicle filiform; gland orbicular. Capsule long, clavate drooping.

A caulescent epiphyte: leaves linear, distichous, obliquely emarginate: racemes short, few-flowered, compact on the apex of very long branched peduncles: flowers pedicelled, flower buds globose. I dedicate this genus to Major Fredrick Cotton of the Madras Engineers, a most indefatigable collector and successful cultivator of Orchideous plants, and who has now a large, and for India, unique collection in his conservatory in Ootacamund.

This genus seems to me to approach *Saccolabium* by habit but differs from all the genera of that tribe in the total absence of even an approach to a spur, by the form of the column, and still more by the unusual form of the lip.

1755. Cottonia macrostachys (R. W.).
Malabar near Tellicherry, Jerdon, to whom I am indebted for a coloured sketch of the plant and the specimens from which the dissections were made.

Stem erect, leaves strap-shaped, oblique and deeply emarginate at the apex: peduncles many times longer than the leaves, branched, each branch ending in a short raceme of rather large yellowish flowers, streaked with red; lip deep purple.

1756. Tæniophyllum Jerdonianum (R. W.), caulescent leaves linear: spikes ramous, many-flowered: bracts ovate, acute, exceeding the pedicel: sepals broad ovate: petals narrow, linear-lanceolate: spur large saccate, lip undulate: pollinia 4, attached to a large elongated gland.

Malabar, Jerdon. On branches of trees. Since naming this plant, further consideration has led me to doubt the propriety of placing it in this genus, but as it seems to approach nearer to it than to any other I must leave it here for the present until I am enabled by the acquisition of additional specimens to re-examine it, most of the flowers of the one I had having fallen off or been injured by insects.

1757. Cryptochilus sanguinea (Wallich).

I am indebted to the late Mr. Griffith for the specimen here represented. He gathered it on the Khassia Mountains. It is so very inferior to the one figured by Dr. Wallich in his Tentamen Nepaulense that I should not have thought of introducing it but for my wish to present analyses of as many genera as I could get of this difficult and interesting family. It may perhaps, however, be a new species, a point I am unable from my materials to determine.

Apetalon (R. W.).

Gen. Char. Perianth bilabiate. Posterior sepal large, 3-lobed, lobes very obtuse; middle one larger somewhat obovato-orbicular; anterior ones resting on the lip, cohering nearly half their length, the two forming a single sub-orbicular cleft sepal. Petals none. Lip shorter than the sepals, broad, truncated at the apex, disk fleshy and punctuate, margins petaloid. Column erect, clavate, anther terminal, 2-celled, cells slightly diverging. Pollen granular. A small terestrial leafless ? plant, scape erect furnished with a few scales and bearing three or four globose apparently unexpanding flowers on the apex: bracts ovate, large in proportion to the plant.

In this curious plant the petals seem to combine with the posterior sepal forming one of unusually large size. If this is the correct view of its structure it follows that all the parts usually found in the flower of an orchid are present in this one, but modified in their form and combination.

1758–1. Apetalon minutum (R. W.).

Near Sultan's Battery in Coorg, under a clump of Bamboos. Jerdon.

Whole plant about 3 inches in height of a pale green or whitish colour throwing out from the scaly base several long roots. The ovary is not twisted hence the flower is resupinate, though, for the convenience of bringing the parts better into view they are otherwise represented in the magnified figure, and for the same reason I have designated the large 3-lobed sepal *posterior* and viewed the lip as anterior, such being the usual position in the family.

I am indebted to Mr. Jerdon for my specimens of this interesting little plant.

1758–2. Pogonia biflora (R. W.), leaf . . . . . scape about 2-flowered: sepals and petals lanceolate: lip obovato-rhomboid, obsoletely 3-lobed, glabrous; lateral lobes short, obtuse, middle one large, undulate, slighty retuse at the apex. Lip pale pink, deeper towards the apex, sepals and petals white.

Wynaud. Jerdon.

This species seems nearly allied to P. Juliana but, so far as I can learn from Roxburgh's full description, is quite distinct.

Podanthera (R. W.).

Gen. Char. Sepals and petals equal, narrow lanceolate. Lip calcarate sessile, ovato-elliptic acute, 3-crested on the disk, eroso-dentate towards the apex. Spur short clavate. Column short truncated in front; posteriorly the thick fleshy filament is produced into an arched crest-like foot to the anther. Anther 2-celled, pollinia granular, with a longish slender caudicula. Herbaceous, leafless, apparently parasitic, colourless plants, growing in dark forest among decayed vegetable matter. "Its whole aspect was fungoid-like, and of the same dead white colour, except a few faint spots of pink." Jerdon.

1759. Podanthera pallida (R. W.).

Wynaud, in dense forests in black vegetable soil, Jerdon, to whom I am indebted for my specimens of this unique plant.

Scape from 12 to 15 inches in length, many-flowered, clothed with short sheathing scales: bracts lanceolate about the length of the pedicels: sepals and petals linear, lanceolate, acute, lip large, marked with a few pale pink spots. Capsule ovate shorter or nearly the length of the sepals, placentiferous carpels bearing a placenta on each margin and dehiscing septicidally. Nearly every capsule on my specimens seems to be in a diseased or monstrous state as shown in figures 10 and 11, the carpels of which have not united, each showing the two lines of abortive placentæ on the margins.

1760. Cepripidium purpuratum (Lind.), stemless leaves coriaceous, oblong, acute, striated, spotted, channeled: scape pubescent: dorsal sepal acuminate, ciliate, revolute on the margin: petals oblong somewhat undulated, pubescent sterile stamen lunate.

Malacca. Griffith.

If this plant is correctly named it will tend to remove Dr. Lindley's doubts as to its being a native of the Malay Archipelago. It seems to correspond with his character so far as can be made out from a dried specimen.

Cullenia.

Gen. Char. Involucrum gamophyllous, tubular, three-toothed, deciduous. Calyx gamosepalous 5-toothed, corolla none. Stamens numerous; filaments long exserted, united into a tube at the base, pentadelphous above; anthers minute, 1-celled, echinate, aggregated, forming numerous capitulæ on the exserted portion of the filaments. Ovary 5-celled with 2 or 3 superposed ovules in each; style equaling the stamens, woolly; stigma capitate. Fruit capsular, globose, echinate, 5-valved, 5-celled. Seed one or two in each cell, ovoid furnished with an aril; testa fleshy; albumen none; cotyledons fleshy, unequal; radicle inferior.

Arboreous; leaves alternate, elliptical, bright shining green above, silvery beneath from numerous adpressed scales (like Elæaginus); flowers congested in compact clusters on the naked branches, short pedicelled; pedicels jointed at the base. Involucrum and calyx thickly clothed with adpressed brownish scales. Fruit about the size of a large orange, beset on all sides with hard prickles. Testa of the seed pale chesnut colour, soft and easily sectile, cotyledons unequal sized, one considerably larger than the other, radicle next the hilum.

I dedicate this genus to Major General Cullen, Resident at the Court of the Rajah of Travancore, who has long devoted his leisure to philosophical pursuits, among which economical Botany has enjoyed a large share of his attention, but is specially intended to commemorate the light which his meteorological researches have thrown on the relationship existing between climate and vegetation. He has established meteorological observations in 10 or 12 distinct stations throughout the provinces of Travancore and Cochin.

1761–62. CULLENIA EXCELSA (R. W. *Durio Ceylanica*, Gardner).

Iyamally Hills, in dense forest. Also Malabar and Ceylon, flowering February and March, ripening its fruit October and November.

A large tree, some of those examined were estimated at about 100 feet in height with a circumference at the base of about 15 feet. Bark inclining to smooth, brownish. Branches spreading and umbrageous, often drooping towards the extremities. Leaves elliptic, oblong, with a short blunt acumen, bright pea-green above, silvery from numerous adpressed scales below. Flowers very numerous, almost covering the two or three years old branches. Fruit brown, capsule hard and woody but soon spliting when exposed to the sun or a dry atmosphere along one of the valves and exposing the chesnut-like seed.

The late Mr. Gardner found it on wooded hills near Galle and has published a full and excellent description of the tree in the 8th volume of the Calcutta Journal under the name of *Durio Ceylanicus* a mistake scarcely to be expected from so acute an observer and excellent Botanist. In his description of the anthers he has fallen into a grave error in supposing each capitula of anthers a single one and each anther a single pedicellate grain of pollen. When my drawing was made I had not good enough flowers to enable me to exhibit this error but I have since got them in a suitable state and have ascertained that they are as described in the generic character. The wood of this tree is beautifully white, but soft and apparently of little value.

Fig. 1. a fructiferous branch much reduced in size, the original was upwards of 3 feet long, 2. clusters of flowers, natural size—3. a fruit natural size—4. leaves, natural size—17, 18, 19, 20, are different views of the seed, all natural size. No. 6. shows an expanded flower with the place occupied by the involucre marked by a slight line. Figures 6 to 10 were taken from old flowers found on a fructiferous branch.

ERRATA.

911.	For	Cymbid. triste (Willd.).	read tenuifolium (Willd.).
1689.	——	——— tenuifolium (Willd.).	—— triste (Willd.).
927.	——	Habenaria montana (Richd.).	—— decipiens (R. W.).
1634.	——	Eria polystachya (Richd.).	—— pubescens (R. W.).
1635.	——	—— pubescens (R. W.).	—— polystachya (Richd.).
1669.	——	Vanda parviflora (R. W.).	—— Ærides Wightianum (Lind.).
1727.	——	Monochilus.	—— Cheirostylis
1745.	——	Saccolabium guttatum (Lind.).	—— Rheedii (R. W.).

In addition to these more important errors the names on several of the plates are incorrectly written, but can be corrected by a reference to the letter press. These latter errors originate with the Lithographer, who copies the names, and the impossibility, at this distance (300 miles), of my revising what he writes.

EXPLANATION OF PLATES.

VOL. V.—PART II.

1763–64. Pisonia aculeata (Linn. P. *georgina*, *Wall.*, list 6768 ?) Shrubby, glabrous, armed, spines axillary, hooked: leaves petioled ovate, tapering at both ends or somewhat bluntly pointed; flowers dioicous: fruit clavate, 5-ribbed; ribs beset with viscid glands.

A widely distributed, large straggling shrub, everywhere, except the new shoots and young leaves (which are finely pubescent) glabrous: branches armed with axillary recurved very sharp thorns: male flowers collected in axillary and terminal compact panicles; female panicles loose and spreading.

Roxburgh relates that he and Dr. Konig were once caught among its branches and, owing to its numerous strong hooked prickles, found it no easy matter to disengage themselves from its trammels, whence, not being at the time aware of its being a described plant, Konig, in his notes, gave it the name of *Traggularia horrida.* It is a native of both the East and West Indies.

I have doubtfully quoted Wall. list No. 6768 for this plant from knowing no other Indian species except the following, with which it can't be confounded.

1765. Pisonia morindifolia (R. Br. in Wall. list, No. 7130), shrubby or sub-arboreous; leaves ovate-cordate sub-acuminate, glabrous, (at first very pale or nearly white, afterwards light pea-green): flowers in terminal panicles, hermaphrodite, tubular; limb slightly 5-lobed: stamens about 8, unequal, partly exserted: ovary usually sterile.

I have only seen this plant in cultivation. It is common in the gardens about Madras, and is called there, Tree Lettuce. It rarely flowers, and I have never seen the fruit. I believe it is known in the Calcutta Botanic garden under the same English name, but its native country is still unknown. The leaves sometimes attain a great size, 8 to 10 inches long and 4 or 5 broad at the base. In taste somewhat resembles the Lettuce, but to my taste forms but an indifferent substitute. The ends of the branches being crowned with white leaves, when all the rest are green, gives it a peculiar appearance, which, added to free growth, seems to have rendered it rather a favourite. It attains the size of a small tree.

This I believe is the plant meant by Mr. Brown, and the name seems sufficiently appropriate.

1766. Boerhaavia repanda (Wild.), stems diffuse, climbing, glabrous: leaves cordato-ovate, sub-acuminate; sinuately repand: peduncles axillary, solitary, usually longer than the leaves, ending in a single umbel of from 4 to 6 flowers: flowers conspicuous, funnel-shaped, each supported on a longish pedicel; stamens 3 or 4, exserted: fruit clavate, glandulose.

A very common plant, widely distributed over Southern India, usually found climbing to a great extent in hedges and among bushes. In old plants the leaves are not developed on the extreme branches, giving them the aspect of great panicles, hence, I presume, Choisy's character, "pedunculis floriferis laxam panciculam efformantibus; and again, "paniculæ florum pedales;" both of which expressions seem to me incorrect. The flowers, which are the largest and most conspicuous of those of the Indian species of this genus, are a moderately deep-pink or rose-colour; the fruit is beset with viscid glands.

1767. Celosia argentia (Moquin), herbaceous, ramous, glabrous: leaves sub-petioled, linear lanceolate, or nearly linear (seldom ovate), acute: spikes long peduncled, ovato-cylindrical or cylindrical, cuspidate: sepals longer than the bracts, slightly keeled, somewhat 3-nerved: utricle ovate pear-shaped.

In corn fields, but less frequent than the similar looking *Chamissoa pyramidalis.*

The plant figured does not quite correspond with the character, approaching in some points more nearly to that of *C. cristata*, but departs as widely in others, so that I feel some hesitation in determining to which it ought to be referred. I believe however that it may be viewed as a variety of *C. argentia* if the two species are actually distinct, which may perhaps be doubted, but that is a point on which I refrain from offering an opinion, as I have only lately given my attention to this order, which I find a very difficult one, owing to many of the species being so liable to run into variations.

1768. Celosia pulchella (Moq.), stem herbaceous, branchy, glabrous: leaves ovato-lanceolate, ovate, or rhombio-ovate, acute, glabrous: spikes simple, interrupted, sub-flexuose: flowers sessile, solitary: sepals longer than the bracts, acute, slightly keeled, 1-nerved: utricles pear-shaped.

Courtallum, Neilgherries, and in moist soil in the vicinity of tanks and wet cultivation.

This species has been confounded with *C. polygonoides* from which it is very distinct. The specimen represented is more luxuriant than those described by Moquin Tandon, the spikes of which are said to be only about 2 or 2½ inches long.

1769. Chamissoa albida (Moq. not Mart.), stem herbaceous, branchy, ascending, glabrous: leaves petioled, long obovate, somewhat cuniform, blunt or sub-emarginate, terminating in a minute point: heads of flowers lateral or terminal, peduncled, somewhat globose, compact: flowers short pedicelled: sepals scarcely exceeding the bracts, very acute, slightly keeled, 1-nerved: utricle ovate.

In sandy soil near the sea coast, not unfrequent: flowering during the rainy and cool season.

It will be seen from the analysis of this and the following species, that they do not quite correspond with the generic character, or rather, perhaps I should say, that the character is somewhat imperfect as regards the infloresence of the Indian species. Here we find the flowers in groups of 3 together

A

from the axils of 3 larger bracts; that the centre one has but one bract while the lateral ones have each three, namely a larger exterior corresponding with the middle one, and two interior lateral ones, thus giving only 5 bracts to the 3 flowers, in place of 3 to each, required by the character. In this species the bracts of the lateral flowers are longer than the calyx, and are prolonged into a long awn-like point. As shown in figure 1, they appear almost like a middle large hermaphrodite flower with a female one on each side, which is simply owing to the lateral flowers being younger than the centre one: figure 4, which is one of the lateral flowers more advanced, shows the true structure.

1770. Chamissoa nodiflora (Mart.), herbaceous, ascending, branchy, glabrescent: leaves petioled, spathulate or spathulato-wedge-shaped, or oblong, obtuse, with a short point; glabrous or more or less pubescent: heads of flowers globose, lateral and sub-sessile or terminal and shortly peduncled: flowers shortly pedicelled: sepals somewhat longer than the bracts, acuminated, keeled, one-nerved: utricle globose.

A common and most variable plant, at least as regards size. The specimen represented is a small rigid almost shrubby one, but presents a form not uncommon in poor sandy soils.

1771. Chamissoa dichotoma (Moq.), suffruticose or herbaceous, dichotomously branched: leaves short petioled, ovate oblong, obtuse, short pointed, pubescent, finely ciliate; heads of flowers lateral, sub-sessile, globose, dense; flowers shortly pedicelled: sepals equaling the bracts, keeled; keel rough: utricle globose; seed smooth.

A diffuse procumbent or slightly ascending plant. The station of the specimen represented is not given, but I have specimens, differing somewhat in form, from Courtallum.

1772. Chamissoa aspera (R. W. *Celosia aspera*, Roth), stems herbaceous, branchy, ascending or more or less diffuse, rough with bristly hairs; or in old plants innocuous prickles: leaves hispid, sub-sessile, from linear blunt to oblong, lanceolate pointed: heads of flowers sub-sessile, globose, dense: bracts as long or longer than the sepals, aristate, pilose: sepals keeled, hairy on the keel: utricle ovoid.

In corn fields in Mysore and Coimbatore. I look upon the plant represented as certainly the same species though it does not quite correspond with Roth's description. This I have ascertained from comparing it with other specimens which do accurately correspond, but which I had not before me when the drawing was made.

1773. Euxolus caudatus (Moq.), stem erect, angularly striated, glabrous, green: leaves long petioled, ovate or rhomb-ovate, narrowing at both ends, bluntish, emarginate, glabrous, green: spikes ascending, somewhat interrupted below, more compact and subcylindrical above: flowers sessile, aggregated in dense glomerules, green: bracts longer than the sepals: utricle globose, pointed, very rough.

A common plant, frequent about Coimbatore in waste ground and among rubbish.

This very common plant is introduced for the purpose of illustrating by the analysis the difference between this genus and *Amarantus*. This is found in the fruit. In this, the seed is enclosed in the thickened persistent indehiscent case or utricle, while in *Amarautus* the case splits all round, as in *Chamissoa*, permitting the seed to drop out. In modern botanical works the former has received the name of "Utricle," while the latter is designated a "Pyxidium." In all other respects they are the same. In regard to the characters taken from the bracts and sepals of this species it may be remarked, in passing, that scarcely two plants are alike and that little trust can be placed in them. The species of *Euxolus* and *Amarantus* are most difficult to discriminate.

1774. Banalia thyrsiflora (Moq.), herbaceous, erect, branched, glabrous: leaves rhomb-ovate or ovato-lanceolate, acuminate: flowers tribracteate, spikes terminal, thyrsoid.

Eastern slopes of the Neilgherries, from about 4000 feet of elevation upwards; not uncommon. The long pale whitish spikes of this plant render it a conspicuous object.

1775. Psilotrichum nudum (Moq.), stem suffruticose, erect or sometimes climbing among bushes: leaves short petioled, ovato-lanceolate or ovate, acute, glabrous: spikes axillary, short, rachis flexuose: flowers dense, very hairy: sepals much longer than the interior short very broad oblique acuminated bracts.

In subalpine jungle, sometimes climbing to the extent of several feet among bushes or other support.

Moquin Tandon has two genera, the present and *Ptilotus*, the distinctive characters of which are so much alike that I can scarcely tell to which this plant belongs, but I place it here on account of its having opposite leaves, those of the other being alternate. With that exception, it seems to me the written characters are about equally referable to this and to *Ptilotus ovatus*, but of the latter plant I have not a specimen for comparison. Perhaps if I had, they might not appear so liable to be mistaken as they seem to be when judged of from written characters only.

1776. This plate furnishes an example of a very unusual error, that, namely, of embodying parts of two very distinct though somewhat similar looking plants. The plant forming the body of the plate is one species, while the flowers that furnish the analyses appertain to another.

This rather curious mistake I did not discover until long after the whole impression had been struck off. It originated in the accidental circumstance of the specimen represented having been mixed with a number of others, which were given to the artist to select from, and being the most suitable in size was naturally chosen, while the flowers of the other, being larger and more easily dissected, were taken for the analysis; the result is the combination in the same plate of 2 very distinct genera, but fortunately both appertaining to the same order and tribe. The plant forming the body of the plate furnishes the type of a new genus, while the dissections represent analyses of the old genus *Ærva*. To correct this blunder, perhaps the most skilful proceeding would have been to cancel the impression, and substitute a new and correct plate. I have however thought it better, as the cost to me is the same, to give subscribers the benefit of my oversight by adding one representing the true *Ærva floribunda*, accompanied by dissections of the

new genus, which I propose designating *Pseudanthus*, in allusion to the deception which its Aerva-like flowers have played off on all previous observers. Pluknet has given (tab. 334 f. 5,) a most characteristic figure of the usual form of the plant with opposite brachiate branches and leaves. Linnæus, who obtained specimens from Surat, and also had the plant growing in the Upsal garden, twice described it, first under the name of *Achyranthes*, and afterwards transferred it to the genus *Illecebrum*. Roth obtained specimens from Heyne, and described it from them under the name of *Achyranthes*, but overlooked the flowers. Martius next took it up and placed it in Forskal's genus *Aerva*, but still apparently without examining the flower; and lastly Moquin Tandon, in D. C. Prodromus, has described it, but apparently not the true plant, as he describes the flower he examined as being pentandrous and having "staminodia filamentis paulo breviora minutissima subtriangularia," a structure which does not conform with any of those I have examined. As however he gives many localities, it seems probable that the flower he examined belonged to a different species. He gives as stations, Philippine Islands, Nubia, Senegambia, Burmah, and many Indian stations. Having misled so many eminent observers, it well merits the name of deceiver.

Pseudanthus.

Gen. Char. Flowers hermaphrodite, 3-bracteate. Calyx 4-sepaled; sepals equal. Stamens two, free to the base; no staminodes; anthers roundish ovoid. Ovary 1-celled, 1-ovuled; style very short, stigma sub-capitate. Fruit a utricle, indehiscent, inclosed in the calyx, seed vertical, lenticular, testa crustaceous, embryo anuular, radicle descending. Herbaceous, erect, ramous: branches like the leaves opposite, brachiate, or sometimes alternate, spikes axillary, aggregate, short white somewhat woolly: flowers very minute, bracts ovate concave, persistent sepals, white somewhat scariose, pubescent.

1776. Pseudanthus brachiatus (R. W., *Aerva brachiata*, Mart., Moq.)

A common and widely distributed plant.

The specimen represented owes the circumstance of its finding a place in this work, to the accident of its having alternate branches and leaves; had it presented the usual brachiate form the mistake could scarcely have happened. I am particular in directing attention to this point, to prevent its being supposed that this is the normal form.

I have specimens from various localities, Courtallum, Coimbatore, Mysore, &c., but with which I have only now become properly acquainted, having hitherto supposed it a form of *Æ. lanata*, from which however it is amply distinct.

1776-bis. Ærva floribunda (R. W.), herbaceous, diffuse, procumbent, pubescent: leaves alternate, short petioled, varying from elliptical to obovate obtuse, slightly pubescent above, villous and pale beneath: spikes axillary, solitary or two or three together, in young plants about the length of the leaves, in older, often two or three times the length, very woolly, compact: bracts broad ovate, mucronate, pubescent on the nerve, glabrous on the margins: sepals oblong, elliptic, obtuse, 3-nerved, very woolly on the back: staminodes equaling the filaments, style short, stigma deeply 2-cleft, lobes reflexed.

Courtallum, Mysore, Coimbatore, &c.

At first I considered this plant Moquin's E. variety of *Æ. lanata*, and named it accordingly; perhaps it is so, but on comparing it with what I presume to be the true plant it appeared to me distinct. I have therefore raised it to the rank of a species, retaining his name which seems very appropriate.

1777. Achyranthes aspera (Linn), stem suffruticose, erect, striated, pubescent; branches spreading, somewhat 4-sided, pubescent: leaves short petioled, obovato-rotund, abruptly attenuated at the base, very obtuse, shortly acuminate, pubescent: spikes slenderly virgate, acute: flowers purplish-green, shining, awn of the lateral bracts about as long as the limb: calyx about twice as long as the bract: sepals obsoletely glabrous.

A very common plant all over India. When blooming the flowers are horizontal, but afterwards become reflexed, and the mature fruit are pendulous and appressed to the stalk. The bracts are at first soft and herbaceous, but afterwards become rigid prickle-like.

The leaves, beat to a pulp and applied as a dressing, are said immediately to relieve the pain caused by the sting of the scorpion. I have never seen it so applied and cannot vouch for the truth of the statement. The albumen of the seed, when bruised, breaks into angular fragments as represented under the magnified portions of the leaf: the larger one exhibits one of them more highly magnified, showing its granular structure.

1778. Achyranthes rubrofusca (R. W.), herbaceous, stems erect, ramous, round, pubescent; branches ascending: leaves ovate acuminate, short petioled, finely pubescent on both sides, spikes virgate, compact: flowers shining, pale greenish: awn of the bracts as long as the limb: calyx longer than the bracts, sepals 3-nerved, glabrous, staminodes truncated, fimbriated on the margin, about half the length of the filaments, style equaling the stamens.

Neilgherries, in moist soil. This species seems in appearance nearly allied to *A. fruticosa*, that is, so far as can be learned from written characters, but is abundantly distinct as shown by the analysis of the flowers. Figure 8 of the plate represents the albumen highly magnified, which appears to consist of a congeries of minute globular grains giving a cellular appearance to the magnified representation.

The stem and branches of the growing plant have a reddish-brown colour, whence the name; in drying, the red tinge fades and the brown becomes deeper.

1779. Achyranthes bidentata (Blume *A. viridis* R. W. in Icon.), herbaceous, erect, ramous; stems obsoletely 4-sided, furrowed between, somewhat hispid; branches long, slender, ascending: leaves short petioled, oval, acuminate, slightly pubescent on both sides: spikes long cylindrical, loosely flowered: flowers horizontal, greenish-brown (when dried): lateral bracts very minute, two-lobed, with a long rigid awn; lower one ovate naviculete, pointed: calyx longer than the bracts, 1-nerved: staminodes minute, truncated, almost entire on the margin, filaments about the length of the style.

Ceylon, Neilgherries, &c.

When naming the drawing I unfortunately overlooked the correspondence, in some important points, existing between my plant and Blume's species, which

subsequent and more careful examination brought to light. Feeling now satisfied that the differences between them are not of specific value, I have adopted his name and beg the favour of the reader to change that on plate. To me it appears that excellent charaters are occasionally derived from the staminodes, but which Moquin generally throws into the back ground by not introducing them into the body of the character. Those derived from them and the bracts seem alone nearly sufficient to distinguish this species from all the rest, and as these organs in my plant correspond with Blume's character I deem it right to refer it to his species, though geographically so widely separated.

1780. Centrostachys aquatica (Wall.), leaves lanceolate, acute, roughish pubescent: spikes long: flowers pentandrous, with five staminodes furnished with a dorsal fimbriated appendage.

Northern Circars. I am indebted to Captain Campbell, 50th Regt. N. I., for the specimen from which the drawing was taken. As I have never met with this plant in the Southern Provinces, I infer it is rare or perhaps does not extend so far south, though Roxburgh says it is a native of Coromandel. As a genus, *Centrostachys* is separated from *Achyranthes* on account of its pungent perianth, having one of the sepals longer than the rest, membranous bracts and the staminodes furnished on the back with a fimbriated appendage. Should these be deemed insufficient, I would add that, in this species at least, the albumen is perfectly farinaceous and not, as in the species of Achyranthes, breaking into larger granular fragments as exhibited in the preceding plates.

The angular figure in the corner between figs. 8 and 10 represents a portion of the testa highly magnified. It is certainly like the object seen, but on too small a scale for perfect accuracy of delineation.

1781. Cyathula tomentosa (Moq.), shrubby, erect, tomentose; branches round, densely tomentose: leaves short petioled, ovate acuminate, shortly pointed; above pubescent, rusty coloured; beneath clothed with silky yellowish wool: spikes long, obtuse, thick, compact above, interrupted below: sepals 5-nerved, pilose, villous at the apex: hooked bristles (glochids) 3–5, shorter than the calyx, pale yellow: staminodes nearly as long as the filaments, ciliate on the margin.

Simla, Countess Dalhousie. I am indebted to the late Countess Dalhousie, for the opportunity of introducing this genus, which I have not met with in Southern India, though it would appear Hayne was more fortunate, as it is described by Roth from specimens received from that excellent Botanist.

1782. Cyathula capitata (Moq.), herbaceous? erect, glabrous or slightly pubescent; branches 4-sided: leaves petioled, oval acuminate, pubescent on both sides, deep green: heads of flowers globose, compact: flowers shining (when dry), dark yellowish-brown: sepals glabrous, somewhat villous below: hooked bristles 5–9, somewhat longer than the calyx, glabrous above pilose at the base: staminodes about half the length of the calyx, bifid at the apex.

Simla, Countess Dalhousie. I feel some hesitation in referring my plant to Moquin's species on account of some differences in the structure of the flowers, but as these are microscopic, while the more easily recognised features all agree, I do not think I would be justified in assigning to them specific value.

1783. Pupalia orbiculata (R. W., *Achyranthes orbiculata*, Heyne, Wallich, *Cyathula orbiculata*, Moquin), "stem prostrate: leaves orbicular, retuse, acute at the base, short petioled, densely villous when young, becoming smoother by age: fascicles densely tomentose, many-flowered, globular, remote, with long brown bristles." Wallich in Roxb. Fl. Ind. Carry Edit. 2. 507.

On sandy soils near the sea beach, not uncommon, near the mouth of the Adyar south of Madras.

An extensively spreading procumbent plant, the branches being often several feet long, round, pubescent or, in older plants, nearly glabrous, of a light brownish-green colour: leaves obovato-orbicular or spathulate, very obtuse, when full-grown coriaceous and nearly glabrous, spikes terminal, long, at first compact, but becoming interrupted as the plant increases in length: fascicles of flowers capitate, densely tomentose: bristles when full-grown not simple, as in *Cyathula*, but compound, or as it were pinnate, pale brown, sepals oval acute, 3-nerved, very hairy on the back. The albumen in this coincides in structure with that of *Achyranthes*.

1784. Gomphrena globosa (Linn.), stem herbaceous, erect, very branchy, somewhat trichotomous, round, hairy: leaves short petioled, oblong-ovate or tending to obovato-lanceolate, acute, mucronate, entire, pubescent: peduncles simple; heads terminal, erect, solitary or sometimes 2 or 3 together, globose, 2-leaved: flowers shining, purple: calyx shorter than the lateral boat-shaped bracts: sepals acute, 1-nerved, villous.

Cultivated every where, and known under the English name of Batchelor's buttons, now quite a weed in many gardens.

This plant, properly speaking, does not merit a place in a work on Indian Botany, as it is certainly not indigenous to India, but it seemed desirable to introduce a plant so generally known and by most persons supposed a native; the more so, as it differs so widely in its generic characters from all the Indian genera of the order. Here the filaments are united into a tube with the staminodes, exceeding in length the style and deeply-cleft stigma. In other respects it is a true member of the family.

1785. Cometes Surattensis (Burm.), leaves cuniate obovate or elliptic: branchlets smooth: stipules borne on the petiols: ramuli of the involucrum of the fruit fascicled, the lower ones deflexed. R. Brown in Wall. Pl. As. rar.

Scind, Stocks.

This curious genus is still unknown on this side of India, but as it may possibly exist here, in the same parallel of latitude, I feel much indebted to Dr. Stocks for giving me an opportunity of introducing it into this work. For, though it is now well known to Botanists who have an opportunity of consulting the very characteristic figure in Wallich's splendid work, yet, as I fear few of my readers possess that advantage, I think it well to give it a place here. The genus is an old one founded by Burman, Fl. Ind. 1768, but until the publication of Mr. Brown's paper, was virtually unknown, Burman's character, adopted by Linnæus, being incorrect and his specimen, even when examined by De Candolle, being pronounced a species of *Pupalia*.

Under these circumstances I deem myself fortunate in thus having an opportunity of extending our knowledge of so old, but little known, a genus.

1786. CHENOPODIUM AMBROSIOIDES (Linn.), stem herbaceous, erect, furrowed, branched; leaves petioled, ascending, oblong, attenuated at both ends, remotely sinuately-toothed or nearly entire; glanduloso-puberulous beneath; the upper ones linear lanceolate, entire: racemes glomerato-spicate, compact, leafy: fructiferous calyx closed, not keeled: seed obtuse on the margin, smooth, shining.

Coimbatore, in waste ground and among rubbish, flowering during the rainy and cool season, often three or four feet high, and exhaling a peculiar aromatic odour.

This plant does not quite correspond with the character, in so far as I find it polygamous, sterile flowers being mixed with the fertile ones, and the stamens of the fertile flowers being often without pollen; peculiarities not mentioned in either the generic or specific characters. Both forms of anthers are exhibited at figure 6, the upper ones being sterile. In these respects it approaches *Ragodia* but differs in others, giving rise to the suspicion that it may form the type of a new genus.

1787. ATRIPLEX HETERANTHA (R. W.), polygamo-dioicous, herbaceous, erect, glabrous: leaves petioled, ovate, pointed, membranous: male spikes axillary, sometimes racemose, some fertile flowers mixed with the sterile ones, calyx 4–5 sepals or deeply 4–5-parted: stamens shorter than the lobes: female spikes long, slender, interrupted, glomerules 4–5 female with one or two male flowers in the centre: bracts of the females cohering near the base, ovate, blunt, enlarging with the fruit, at length suborbicular, glabrous.

Coimbatore, in salt clay soil and among old rubbish in the neighbourhood of brick kilns.

This species seems referable to Moquin's first section in which both forms of flowers are fructiferous, but seems very distinct from all his species.

1788. OBIONE FERA (Moq.), herbaceous, ascending, striated, ramous; branches unarmed: leaves alternate, petioled, divaricated, ovato-lanceolate or deltoideo-ovate, obtuse, entire, sometimes somewhat sinuate, thin somewhat mealy glaucous green: sheath of the bracts pedicelled, ovate, obtuse at the apex, denticulate below with the margin entire, disk inappendiculate, and obsoletely carinulate, sub-coriaceous.

China. I am indebted to Dr. Dorward of Madras, for my specimens of this plant. I introduce it here though not hitherto found in Coromandel under the impression that we may have several species in the salt soils near the coast, especially in the Tanjore and Tinnevelly districts, and possibly this one among them. The difference between *Obione* and *Atriplex* is very slight, so slight that I think it would have been better to have followed Meyer in reducing it to the rank of a section of the older genus. In *Atriplex* the ends of the embryo are turned down, looking, if I may so say, towards the earth, while in *Obione* the seed seems to lie on its back with the ends of the embryo looking towards the sky. They may be thus represented: *Atriplex* ⌒, *Obione* ◡; in all other respects they are the same.

1789. OBIONE STOCKSII (R. W.), stem shrubby, very ramous, ascending or diffuse, branches round, glabrous, unarmed: leaves alternate, short petioled, elliptic obtuse, tending to obovate, smooth, glabrous, turning white in drying, not powdery, sheath of the bracts conical, limbs orbicular, free, entire; disk smooth.

Scinde, Stocks, in salt marshy soils, apparently a low somewhat spreading very ramous shrub, the leading branches spreading, branchlets ascending. The surface of the leaves, when moistened and viewed under the microscope, seem as if covered with most delicate lace; they appear, from the dried specimen, to be succulent and veinless, the costa being scarcely visible. The bracts on the other hand, when viewed with transmitted light, show quite a network of veins. This species seems nearly allied to *O. Belangeri*, a Persian plant.

1790. OBIONE KONEGII (Moq.), stem shrubby, procumbent, striated, sparingly branched, unarmed: leaves alternate, petioled, small, divaricate, obovato-orbicular, very obtuse, entire, scaly-white: theca of the bracts sub-sessile, obovate, the apex very obtuse, margin somewhat sinuate, disk muricate, somewhat coriaceous.

Sea coast near Tuticorin.

This is a straggling plant, its branches sometimes two or three feet long. It is at once distinguished from both the preceding by the bracts, which in this are roughened with thickened projecting points, in those, quite even and foliaceous.

1791. KOCHIA INDICA (R. W.), herbaceous or suffruticose, erect, ramous; branches ascending, and like the ramuli, more or less woolly: leaves linear, lanceolate, sessile, villous on both sides: flowers axillary, one or two together in each axil, calyx very woolly, wing or disk exceeding the calyx, scariose, nearly glabrous: seed black.

Coimbatore, in salt soils, flowering October.

The flowers are sometimes male by abortion of the ovary.

1792. SUÆDA MONOICA (Forsk.), stem shrubby, diffuse, branchy; branches erect, spreading, glabrous: leaves long, terete, attenuate at the base, stiff, glabrous: flowers axillary, sessile, glomerate; male and female mixed: dried fructiferous calyx, scarcely or not at all inflated: seed lenticular or somewhat oblong, prominent at the point of the radicle, smooth shining black.

Sea coast, Tuticorin.

In his character of the seed Moquin has the words, "Semine subrostellato margine acutiusculo." By the term "rostellato," I understand a beak at the apex, which does not exist in my plant, but there is a prominence at the base, that is, at the point of the radicle: is it to that he alludes? or is this a different species? The male flowers in my specimens are few, the female ones very numerous.

1793. CHENOPODINA INDICA (R. W.), shrubby, diffuse, procumbent, very branchy, glabrous: leaves succulent, small, oblong, somewhat clavate, obtuse, attenuated towards the base: flowers axillary, glomerate: stigmas two or three: fructiferous calyx globose, not inflated, green: seed depressed, glabrous, shining brown.

B

Sea coast, Tinnevelly District.

This seems to be the only Indian species, and seems to approach in many points *C. microphylla*, a Russian species; but which I think can scarcely be the same. This genus is distinguished from the preceding by the position of the seed, horizontal in this, vertical in that.

1794. Caroxylon Indicum (R. W.), fruticose, erect, very branchy, glabrous, branches opposite, spreading: leaves fleshy, oval, sessile, acutish at both ends, glabrous; floriferous leaves exceeding the flowers: sepals ovate, bidentate at the apex: wing at first small, afterwards enlarging: filaments adhering at the base to the 5-toothed cup; anthers oblong, cuspidate: wings of the fruit orbicular, spreading, scariose, entire on the margin.

Coimbatore, flowering in January. I have specimens of what appears the same species from Scinde, communicated by Dr. Stocks. In Coimbatore the plant attains the height of between 3 and 4 feet, the branches throughout resembling the specimen figured, which is merely the top shoot of a larger plant. It is succulent, bright green, but turns nearly black in drying. This genus is very nearly allied to *Salsola*, from which it principally differs in the cup-shaped, nectary enclosing the base of the ovary.

1795. Salsola spinescens (Moq.), shrubby, ascending, glabrous, very branchy; branches alternate, divaricated, not jointed (ramuli spinescent pubescent): leaves scattered, very minute, ovato-3-cornered, obtuse, thick, glabrous, pubescent on the back; floral ones shorter than the glomerules: bracts somewhat longer than the floral leaves, shorter than the fructiferous calyx: flowers solitary, 5-androus; wings spreading, small, equal, obovato-cuniate, very obtuse, gnawed on the margin, delicately membranous, diaphanous.

Scinde, Stocks.

This is the only Indian Salsola I possess, and avail myself of it, to represent the genus. I do not however feel quite certain of the species, though I think I have correctly named it, the character appearing too prolix and involved. In the accompanying plate, No. 1. is a flowering branchlet, 2. the bracts and floral leaves, 3. the bracts detached, 4. appears to be a monstrosity or disease, perhaps caused by attacks of insects, of which there are several on the specimen. It is introduced as showing from what slight causes leaves become greatly modified; here they are changed in shape and texture, and clothed all over with long hairs, the normal form being short, succulent, and glabrous, in place of lanceolate and hairy. No. 5. is one of the leaves of No. 4. detached. The other numbers refer to the ordinary parts of the flower, and do not require further notice. The fruit-wings, as here shown, do not quite correspond with Moquin's character, but correctly represent those of the specimen. The plant is glabrous, and the wings beautifully diaphanous.

1796. Suæda Indica (Moq.) shrubby, very diffuse, branchy; branches ascending, glabrous: leaves succulent, roundish, attenuated towards the base, obtuse or sub-clavate at the apex; the upper ones small oblong: flowers axillary, sessile, 3–5 glomerate on old plants, the extreme branches, from abortion of the leaves, racemoso-paniculate: bracts scariose, dentate on the margin; fructiferous calyx fleshy, angular, seed lenticular, slightly rostrate, smooth bright shining black.

Sea coast, Tinnevelly District, near Tuticorin. The leaves and flowers, which turn black in drying, are very succulent when green. In old plants the extreme branches are leafless, and entirely covered with flowers. These latter, in some of my specimens, have so generally become the nidi of insects, that out of, I dare say, upwards of one hundred examined not more than three or four had perfect seed. I have slightly altered Moquin's character in one or two points to make it correspond with my specimens, which, I believe, appertain to the true plant.

1797. Polygonum ambigudum (Meisn. in Wall. Pl. As. rar. vol. 3d.), spikes terminal, paired, very long, straight, compact: bracts long acuminated, dilated at the base, imbricated: flowers moderate sized, not expanding: leaves ovate, or ovate oblong, cordate, taperingly long acuminate, smooth above, nerved, puberulous beneath; margin obsoletely revolute, minutely crenulate: upper ones sub-sessile, oblong, lanceolate, somewhat stem-clasping.

Mussuri and Simla, Countess Dalhousie, and M. P. Edgeworth, Esq. I am indebted to Mr. Edgeworth for the principal portion of the accompanying plate, from whose drawing it was taken. I have added, from a specimen received from the late Countess Dalhousie, the branch on the right to show the amplexicaul leaves, and the sections of the ovary.

1798. Polygonum barbatum (Linn.), spikes virgate, sometimes paired, often paniculate, continuous, compact-flowered: bracts turbinate, imbricating, brown, fringed with white hairs, one- or two-flowered, about as long as the pedicels: flowers 6–8-androus, 3-gynous: calyx 5-cleft: achenium (seed) 3-cornered, smooth, shining: ochrea (sheathing stipule) loose, crowned with long bristly hairs: leaves oblong, lanceolate, rough: stem thick, jointed, erect, branched; rooting at the base.

A very common plant all over India, growing on the banks of streams and water-courses, and in such places always in flower.

1799. Polygonum glabrum (Willd.), spikes panicled, straight, continuous, loose, cylindrical, long, many-flowered: bracts somewhat imbricated, awnless: pedicels exserted: flower 6–7-androus; 2–3-gynous: calyx 5-cleft: seed lenticular, or rarely 3-cornered, the convex sides delicately punctuate, shining: sheathing stipules muticous, the upper ones exceeding the internodes: leaves lanceolate, glanduloso-punctuate: stem erect, simple, everywhere glabrous.

Very common in similar places with the last, the two very generally found growing together.

1800. Polygonum strictum (Allioni), spikes loosely-flowered, sub-cylindrical, linear, interrupted at the base: bracts short, ciliate, glabrous, about 2-flowered; flowers small, 5–6-androus, 2–3-gynous, calyx 5-cleft, glandless: seed lenticular, rarely 3-cornered, shining: stipules (ochreæ) ciliate, sparingly adpressed, strigose: leaves lanceolate or linear, often roundish or subcordate at the base, nearly glabrous: stem prostrate or ascending, rooting at the base.

Neilgherries, common in low wet ground.

1801. Polygonum Donii (Meisn.), spikes often paired or paniculate, long filiform flaccid, interrupted: bracts somewhat remote, bristly, ciliate, one-flowered; pedicels exserted: flowers 8-androus, 3-gynous: seed 3-cornered, smooth dull-brown: calyx 5-cleft, the outer lobes glanduliferous: ochreæ loose, hairy, long ciliate: leaves lanceolate, oblong acuminate, hispidulous beneath, ciliate on the margin: stem ascending, ramous, rooting at the base.

Neilgherries, on wet ground in woods.

1802. Polygonum pedunculare (Wallich), spikes short, ovate or roundish: peduncles paired, often dichotomous: bracts muticous; flowers 5-androus, 2-gynous: seed lenticular, shining, punctuate: ochrea somewhat pointed, beset with bristly hairs at the base: leaves erect, varying from broad ovate to linear lanceolate acute, rough on the margin: petiols about the length of the stipules; stem smooth, rooting at the base.

Neilgherries, frequent in woods in low wet soil. This is so variable a plant, that I have been induced to give figures of three sufficiently distinct forms, which I find mixed in my collection of specimens.

1803. Polygonum horridum (Hamilt.), spikes short, compact, cylindrical, sometimes sub-globose: peduncles geminate or dichotomously panicled, divaricate: bracts ciliate, flowers 6–7–8-androus, 2–3-gynous: seed lenticular or obsoletely 3-corned, faces convex, granulato-punctuate: ochrea bristle ciliate: leaves lanceolate, cordate, or sagittate at the base, scariose on the margin, middle nerve beneath with the petiol base of the ochrea and stem densely armed with retrorse bristles.

Ootacamund, in shallow water, very abundant. In flower at all seasons, but seems very rarely to mature seed.

1804. Polygonum Nepalense (Meisn.), heads of flowers supported by the sessile cordate leaves: peduncles paired: scariose bracts and ochrea glabrous: flowers 6-androus, 2-gynous: limb of the calyx 4-cleft: seed compressed, sides convex, prettily netted, scrobiculate: upper leaves sessile, oblong, cordato-stem-clasping; limb of the lower ones ovate, acuminate, decurrent, wing-like on the petiol, stem-clasping at the base; sparingly punctuate beneath, with pellucid glands.

Neilgherries. A very common weed in gardens about Ootacamund, flowering at all seasons.

1805. Polygonum Wallichii (Meisn.), heads of flowers paired; peduncles long filiform, glabrous: bracts scariose, obtuse, pointless: flowers 8-androus, sometimes 6-androus, 3-gynous; limb of the calyx 5-cleft: seed 3-cornered, sides granular: leaves not punctuate, glabrous, or slightly pubescent beneath, somewhat granularly-rough above, ovate, acuminate, or sub-cordate at the base, decurrent on the petiol; the margin and ochrea shortly ciliate: stem glabrous.

Neilgherries.

The points represented on the magnified portion of the leaf are granular asperities, not pellucid points.

1806. Polygonum Chinense (Linn.), flowers 8-androus, 3-gynous: corymbs simple or panicled: peduncles roughish; furnished with foliaceous cordate bractiols: leaves sub-coriaceous, ovate, or oblong, acuminate, alternate or cordate at the base, more or less pellucid, punctuate; petiols short auricled at the base, with a reniform foliaceous somewhat deciduous appendage: stem glabrous, suffruticose, procumbent, extensively diffuse, or climbing if supported.

An extensively distributed plant, preferring alpine stations, but not confined to them, being abundant at Courtallum, only some 600 or 700 feet above the sea level.

The genus *Coccoloba* is distinguished from *Polygonum* by the fruit, which in the former is baccate, i. e., the calyx enlarges, becomes thickened and pulpy. In this plant it often undergoes that change and becomes of a deep purple or black colour. The first time I found this plant I, in consequence, named it *Coccoloba Indica.* Meisner, like Linnæus, from the examination of dried specimens, determined that it was a true Polygonum, and I have here adopted that name, though not prepared to agree with them. This plant in truth forms the connecting link between the two genera, as seed are often matured without the calyx becoming baccate.

1807. Polygonum molle (Don), panicles very branchy, leafless; racemes confluent: bracts 3–6-flowered, about the length of the pedicels: smaller segments of the calyx equal, narrow oval, acutish: ochrea equaling or somewhat exceeding the petiol, shorter or about the length of the internode: leaves oblong, lanceolate, shortly acuminate, velvety beneath, glabrescent above: stem fruticose, branchy, and with the branches peduncles and ochrea, pilose.

Simla, Countess Dalhousie.

The two lower leaves in the figure are misrepresented in the half only being shown villous, a blunder in part attributable to the lithographer who neglected the directions to represent them the same throughout. Errors like these are not easily guarded against while the artist and lithographer are working at so great a distance from each other: the one in Madras, the other in Coimbatore, 300 miles apart.

1808. Polygonum Indicum (Roth.), fascicles axillary, 3–6-flowered; pedicels exserted: flowers 5–6–8-androus: calyx somewhat longer than the pedicel; lobes acute, diverging, the three exterior ones at length acutely keeled: seed thickened on the angles, sides ovate, shining, obsoletely punctuate, striated towards the apex: ochrea short, lacerated, slightly nerved; those of the stem evanescent: leaves lanceolate or linear, longer than the internodes, spreading: stem prostrate, radiating, woolly, very ramous.

A widely distributed and common plant lying flat on the ground, the stipules or ochreæ scariose, the flowers pink. It is variable in form and number of stamens. It seems scarcely distinct from the European *P. aviculare.*

The specimen figured seems to fluctuate between *P. herniarioides* and *Indicum*, and seems to connect the two species, if indeed they be species.

Pteropyrum (Jaub. and Spach.).

Gen. Char. Perianth rotate, 5-parted, sub-petaloid, withering; lobes 2 series, unequal; two exterior ones, afterwards reflexed; interior ones shorter, adpressed to the ovary and fruit. Stamens 8, inserted on the throat of the perianth; 5 shorter, alternate with the lobes, persistent; anthers versatile, deciduous, 2-celled. Ovary free, 1-celled 1-ovuled, 3-winged, contracted at the base and apex; ovule attached to the base of the cell, atropous; styles 3, persistent;

stigmas capitate. Achænium (fruit) coriaceous, 3-winged, cordato-ovoid, 1-celled; cell ending in an elongated neck, similarly winged, interrupted near the middle by a deep sinus, the base and apex rounded. Seed erect, filling the cell, somewhat triangular, stipitate, beaked, albuminous; albumen wanting in the beak round the radicle. Embryo axile, straight, clavate; radicle superior, about twice the length of the cotyledons.—Erect, ramous shrubs, branches alternate. Leaves coriaceous, entire, 2-stipuled, sometimes fascicled. Flowers hermaphrodite, fascicled, 2–3 from each fascicle of leaves, pedicelled; pedicels articulated below the middle, thickened at the apex, vaginate with sheathing bracts at the base. Fruit drooping.

I have taken the liberty of abbreviating this generic character, which in the original is very long. The most curious feature of the plant here represented is found in the fruit, which, at the neck, receives a twist, by which the upper half of the wing becomes alternate with the lower, giving the fruit the appearance of having six wings, three above and three below. In another species, this peculiarity is wanting, the fruit in it not being so contorted.

1809. Pteropyrum oliverii (J. and S.), leaves fascicled, obovate or oblong, or spathulate, or somewhat roundish, linear, or flat: terminal wings of the fruit almost concealed by the larger alternate lower ones.

Scinde. I am indebted to Dr. Stocks for my specimens of this curious plant.

As the genus has not yet found its way into general systematic works on Botany, I have felt it necessary to give the generic character. It is given at full length in Walper's Annals of Botany, vol. 1st, p. 553.

1810. Rumex Nepalensis (Spreng.), glabrous, verticels remote, many-flowered: fructiferous branches nearly leafless: valves ovate, oblong, obtuse, reticulately-veined; one of them obsoletely grain-bearing, furnished at the base with subulate fimbriæ, naked towards the apex, the bristles shorter than the breadth of the valve: leaves acute, somewhat waved, the lower ones ovate, oblong, cordate at the base; the radical ones oblong, subcordate; upper ones lanceolate: stem very ramous, furrowed, thick.

Neilgherries, frequent, also on the Pulney Mountains, but less common.

Begoniaceæ.

This very curious order, consisting at present of 3 genera and about 160 species, has hitherto so completely set the natural system of botany and its expounders at defiance, so far as regards finding relationships is concerned, that I think I may almost hazard the assertion, that these are at the present moment about as little known as they were in 1789, when Jussieu published his genera with the genus *Begonia* placed among his "plantæ incerte sedis." Since then many attempts have been made to find a suitable location in the natural series. De Candolle placed it between *Chenopodiaceæ* and *Polygonaceæ* in which he has been followed by several excellent Botanists. Link looks to the *Umbelliferæ* for affinities; Martius to *Scævoleæ* near *Campanulaceæ;* Meisner turns thence to the *Euphorbiaceæ*, and thinks he has found the most suitable station in their vicinity; Lindley in his Nixus suggested their affinity with *Cucurbitaceæ*, and has been followed by Endlicher and Brongniart, the former, however, with the remark that it is a difficult order, not closely associating with any yet known, and whose true affinities are questionable. Lindley, in his Vegetable Kingdom, still adheres to this view, and places the order in his Cucurbital alliance. This I think by far the best station yet indicated, but still the affinity appears so remote, that for the present I am almost disposed to go so far as to say that it has no really near affinity in the living flora of the earth, and that we must seek its relationships among the fossil remains of a former world.

Lindley in his character of the order assigns 4 sepals to the male, and 5 to the female flowers. This must be received with some latitude, as the numbers differ in different species. In regard to the seed, they are said to be without albumen, which, in those I have examined, is not the case, they having a rather large albumen in proportion to the size of the seed.

On the subject of affinities, Lindley's views seem at first sight very paradoxical, but may after all, like many other paradoxes, prove very near the truth. He says "the relationship of *Detassa* is well made out," though it has a decidedly 1-celled ovary, with parietal placentæ. To this I demur. Again, after stating that the main objection to the association of Begoniads and Cucurbits in the same alliance is the apparent difference of their placentation—axile in the former, parietal in the latter—he thus proceeds to show that the distinction is one of words, rather than of essential structure. "The ovary of such Begoniads (some species of *Diploclinium)* consists of three carpels whose dorsal suture is winged, and whose margins turn inwards for a considerable distance, each margin forming a plate or placenta over which the ovules are arranged. This, with the exception of the wing proceeding from the dorsal suture, is the structure of *Cucumis*." To understand this it is necessary to observe that the midribs of the carpellary leaves of a Cucurbit are opposite the points of attachment of the seed (see a transverse section of a cucumber), and that the white line, extending from the centre of the fruit to the seed, is not the partition between 2 cells, but is the two inflexed margins of the same carpel as shown in *Diploclinium;* while the intermediate triangular fleshy semeniferous portions are simply modified forms of the thin partition shown to exist between the cells in all the following transverse sections of the ovary and fruit of Begoniads.

This view is certainly very ingenious, and is borne out by what we see in *Rhododendron* and some *Gesneraceæ*, where similar marginal inflections of the carpellary leaves exist. This view of the structure of a Pepo, which at once and for ever overturns the one which I formerly advanced, leaves no doubt, when taken in connexion with the identity of form of the stigmas and some points of habit, that Begoniads and Cucurbits more nearly associate with each other than either does with almost any other in the series of natural orders. There are still however many points of difference between them, though it must be admitted that a great step has been made towards becoming acquainted with their true relationships. On the subject of the parietal position of the placentæ of Cucurbits, I confess I am not yet quite a convert to the doctrine, still less so after being told that the difference between those of a Pepo and a Begonia is one of words rather than of

essential structure, seeing that those of Begonia are so unequivocally axile, the only difference between parietal and axile placentation being that the carpels in the former case meet in the parietes, and without proceeding further form placentæ at the point of union of the two leaves, while in the latter the edges dip down to the centre, and there meeting, I think, form the placenta from the union of the two margins of the same leaf.

1811. BEGONIA GRAHAMIANA (R. W.), root tuberous? stemless: leaves long petioled, peltate, suborbicular, glabrous above, punctuate and slightly villous on the veins beneath; ciliate on the margin: petiols furnished with large scariose bracts at the base: scapes exceeding the leaves, slightly hairy towards the apex, glabrous below: corymbs loose, many-flowered.

Courtallum, in dense forests, flowering August and September.

I dedicate this handsome species, of this, his favourite genus, to the memory of the late Dr. R. Graham of Edinburgh, one of its most successful cultivators and to whose skill in cultivating and accuracy in describing them we are indebted for much of our acquaintance with its numerous species. The peduncle is represented a little too rough.

1812. BEGONIA SUBPELTATA (R. W.), root tuberous with a solitary (always?) long petioled sub-orbicular sub-peltate leaf: leaf serrated and with the petiol sprinkled with coarse short hairs, most numerous at the insertion of the petiol: scape filiform, about the length of the leaf, ending in a few-flowered raceme.

The station is not mentioned, but I think Malabar. In dried plants the leaves are most delicately membranous and transparent, and the hairs become so shrivelled that they are scarcely visible unless when viewed by transmitted light.

1813. BEGONIA DIPETALA (Graham), shrubby, erect: leaves semicordate, somewhat angled, acute, doubly serrate, smoothish: stipules semi-cordate, flowers dipetalous, wings of the capsule about equal, roundish.

Neilgherries, very frequent at an elevation of from 4 to 6 thousand feet, in moist woods growing in crevices of moss-covered rocks and elsewhere.

This is a very handsome species which I have found on many other hills, besides the Neilgherries. So often indeed, and so variable, that I suspect there are more than one Indian species characterised by the terms, "floribus dipetalis." But in truth the genus is a most difficult one, as up to the present time, no well-executed monograph of its species exists to guide the colonial Botanist to a knowledge of the distinctive marks by which they may be discriminated. Dr. Graham's figure in the Botanical Magazine, taken from a young plant, gives a very imperfect idea of the species. The stems are straight, rod-like, generally without a branch, the leaves, in the wild state, are rarely spotted as represented, and towards the apex almost every leaf is furnished with its cyme of male and female, beautiful rose-coloured, flowers.

DIPLOCLINIUM (Lindley).

This genus was established by Dr. Lindley, to include all those Begonias having a double placenta. It has not yet been admitted into systematic works, but as it seems to rest on a very sufficient and easily ascertained character, I readily adopt it here. In habit and in all other respects it seems to agree with Begonia, but as that genus is a very large one (upwards of 160 species) it is desirable to divide it by any feasible means within our reach, and the double placenta seems very properly taken advantage of for the purpose.

1814. DIPLOCLINIUM BILOCULARE (R. W.), herbaceous, erect, few-leaved (1 or 2); leaves petioled, or sub-peltate, sub-orbicular slightly oblique, doubly and finely serrated, slightly acuminate, pubescent on both sides, more densely on the veins beneath: corymb loose, many-flowered, male 4- female 5-petaled, ovary 3-winged, 2-celled.

Mergui, Griffith.

I am indebted to the late Mr. Griffith for several specimens of this plant. They have all, except one, two leaves, and one of those on the plant represented is decidedly peltate, the other sub-peltato-cordate. The artist, in the upper figure, has represented the pubescence as too decidedly stellate, and in the other the pubescence is too sparing. In other respects the figure gives an excellent idea of the plant represented.

1815. DIPLOCLINIUM ARNOTTIANUM (R. W.), stemless, root tuberous: leaves orbiculato-cordate, crenato-serrate; above sprinkled with coarse jointed hairs; below glabrous except the hairy veins: scape shorter or about as long as the leaves, few-flowered: flowers all 4-petaled, wings about equal.

Courtallum, in dense forest, flowering July and August.

The hairs as they appear in this plate are not well represented, those shown in the following, No. 1816, give a much better idea of them.

1816. DIPLOCLINIUM CORDIFOLIUM (R. W.), stemless, tuberous, (?) leaves long petioled; petiols furnished at the base with scarious stipules, glabrous; limb orbicular, crenato-serrate, deeply serrato-cordate at the base, sparingly sprinkled above with coarse jointed hairs: scapes about as long as the leaves, cymose: cymes loose, spreading, many-flowered: flowers smallish: male 4-petaled, female 3 or 4: wings equal.

Malabar, in forests, flowering June.

1817. DIPLOCLINIUM LINDLEYANUM (R. W.), stem erect, herbaceous, flexuose, branchless: leaves semicordate, oblong, acuminate, muricato-dentate on the margin; glabrous on both sides: cymes axillary, loose, many-flowered: flowers rather small, 4-petaled, wings about equal.

Courtallum, and Malabar.

This so much resembles Rheede's figure (Hort. Mal. 9—t, 86, quoted by Dryander and Roxburgh, for *B. Malabarica*), that I at first so named this plant, but the inflorescence is so different that I felt it necessary to relinquish that name. Dryander remarks on the strange circumstance of the female flowers having only 3 petals. I do not attach much importance to it, as it seems merely the result of accidental abortion, which may be seen in both male and female

C

flowers on the same plant. The *B. Malabarica*, Roxb., seems to be a species quite distinct from Dryander's, and Rheede's plant, but it is, like my plant, a *Diploclinium*, apparently more nearly allied to it than to Rheede's.

In these characters I, in referring to the lobes of the perianth, have followed my predecessors in calling them petals, which is not quite correct though so thoroughly petaloid in texture and appearance.

LAURACEÆ.

The formation of the flowers in this order being somewhat peculiar, I have in several of the following plates endeavoured to exhibit their distinguishing features by means of diagrams. A few introductory remarks explanatory of these diagrams and of the parts they are intended to represent, seem necessary.

In this order the flower is nferior, usually bisexual, with a six-lobed perianth, 12 more or less perfect stamens, and a 1-celled ovary with a single pendulous ovule. The lobes of the perianth form a double row or series 3 and 3, or rarely two or four in each. Each of these lobes has in front, 2 stamens, forming together 4 rows of 3 each: those of the 2 outer rows, next the perianth, are usually perfect with the anthers opening inwards, those of the third row opposite the first or outer are also usually perfect, but differing from the preceding in having two pedicelled glands at the base of the filament, and their anthers opening outwards. Those of the inner or 4th row, opposite the 2d, are rarely perfect, being usually antherless filaments, or what are called *staminodes*. In the following diagrams the stamens of the outer rows being normal (a filament and perfect anther) their places are marked by a small o, those having gland-bearing filaments by a double circle oo; and lastly the staminodes by a point. In some genera the anthers of both the interior rows are perfect and glanduliferous, the diagrams show these by the increased number of double oo. In some the inner row is altogether wanting, these are equally shown by the absence of points. These differences are employed as generic characters. Some genera have 1-sexual flowers; the analyses show these by representing separately the male and female flowers when both were procurable. Others have several flowers aggregated within an involucrum, forming a head or simple umbel. *Cylicodaphne tetranthera*, &c., furnish examples of this arrangement.

In this order the anthers are 2- or 4-celled, not, as in other families, opening by slits or pores, but by valves which separate from below, and turn back towards the apex as shown in all the plates.

The ovary is superior and free, except in a few genera where it is more or less completely embraced by the tubular base of the perianth. (See *Cryptocarya.)*

In addition to these, Professor Nees, in his excellent and most elaborate monograph of the order (Systema Laurinarum), has availed himself, for grouping his genera into tribes, of the duration of the leaves, whether deciduous or evergreens—of the inflorescence, whether umbelled or panicled—of the dehiscence of the anthers, whether opening at the apex or below the apex—of the fruit, whether free or more or less inclosed within the perianth—the staminodes of the 4th series, whether wanting, imperfect, or distinctly 3-angular—the limb of the perianth, whether persistent or deciduous—in the former case, whether hardening into a cup or not hardening: and in the latter whether the bases of the lobes are persistent and truncated or altogether deciduous from the tube.

The leaves are also used in the limitation of these groups, whether, namely, they are triplinerved or penninerved, and reticulated. In *Cinnamomum*, they are 3-nerved or triplinerved: generally less distinctly so in the following. To show how these characters are used, I shall introduce verbatim Nees' Synopsis or Key to the Tribes, "Clavis Tribuum," in which he exhibits in a tabular form, their application in practice.

The characters employed for the limitation of the genera are sometimes very minute, and their value at first sight apparently so inappreciable, that I repeatedly thought, when I first entered on the study of the order, that sub-division had been carried to an unnecessary degree of refinement, an opinion which increase of knowledge, though it has not altogether removed, has certainly not strengthened, but it is one on which, considering my limited opportunities of studying the order as a whole, it would not have been safe to act. I have therefore as much as possible availed myself of named specimens for representation, and have only in two instances altered names given by Nees, but hope that in both cases the learned Professor will adopt the alterations.

Before concluding these introductory remarks, it may be well to advert briefly to an organ, if such it may be called, which, if I rightly understand, seems to have given the Professor some trouble; I allude to the pedicelled capitate glands of *Tetranthera.* These bodies he at different times calls both glands and staminodes, a most inconvenient confusion of terms. For myself I can see no reason for considering them any thing else than a modified form of the glands found in every genus in the order. But at the same time I look upon the modification as so peculiar, and of such rare occurrence, that I think it might have generic value attached. They exist in several, but not in all the species of *Tetranthera*, those in which they are present, at least so far as my experience extends, seem to me to form a distinct and well-marked genus, which might be beneficially separated from the rest of the genus. But to this I shall advert more at large by and bye.

CLAVIS TRIBUUM.

Herbae aphyllae, volubiles, - - - - - -	*Tribus* XIII.	CASSYTEAE.
Arbores (aut frutices) foliosae,		
Folia decidua (demtis aliquot *Tetrantheris*) - - - -	*Tribus* X.	FLAVIFLORAE.
Folia perennantia (exceptis aliquot Tetrantheris,		
Inflorescentia umbellulata vel glomerata,		
Inflorescentia regulariter umbellulata, involucrata, - -	*Tribus* XI.	TETRANTHEREAE.
Inflorescentia e gemma perulata, glomerata vel subraccmosa,	*Tribus* XII.	DAPHNIDINAE.
Inflorescentia paniculata,		
Antherae apice dehiscentes - - - - - -	*Tribus* VI.	ACRODICLIDIA.
Antherae infra apicem dehiscentes,		
Antherae latae, subsessiles,		
Antherae conformes ostiolis ab apice distantibus, - -	*Tribus* VII.	NECTANDREAE.
Antherae exteriores sub fructu petaloideae, - -	*Tribus* VIII.	DICYPELLIA.
Antherae a filamento discretae, locellis uno super altero positis,		
Fructus (subsiccus) tubo perianthio magis minusve obtectus,	*Tribus* V.	CRYPTOCARYEAE.
Fructus perianthii tubo non indutus,		
Staminodia quarti ordinis nulla vel imperfecta, subulata aut subcapitata, - - - -	*Tribus* IX.	ORCODAPHNEAE.
Staminodia quarti ordinis capitulo distincto triangulari,		
Perianthii limbus integre persistens		
in cupulam durescens - - - -	*Tribus* III.	PHOEBEAE.
patulus nec induratus, - - -	*Tribus* IV.	PERSEAE.
(his folia penninervia aut incomplete nervosa)		
Perianthii limbus deciduus,		
Basis laciniarum persistens truncata, - -	*Tribus* I.	CINNAMOMEAE.
Laciniae integrae a tubo deciduae, - -	*Tribus* II.	CAMPHOREAE.
(his folia sunt definite nervosa),		
Generum conspectum sub quaque tribuum loco citato invenies.		

As my collection is rather rich in species of this order, I might have added considerably to the number of plates devoted to its illustration, but now that the work is drawing to a close, this being the concluding volume, I felt desirous of aiding the researches of those Indian Botanists, less favourably situated than I am for determining them, by giving illustrations of as many genera of other orders as my now limited space will permit.

1818. CAMPHORA OFFICINARUM (Bauhin Pinax), leaves triplinerved, shining above; axils of the veins glanduliferous: corymbs naked: flowers externally glabrous.

I only know this plant from description, and the figure copied from Roxburgh's drawing for which I am indebted to the kindness of Dr. Wallich, while superintendent of the Calcutta Botanical Garden.

1819. APOLLONIAS ARNOTTII (Nees ab Esenbeck), glabrous: leaves oblong, exquisitely acuminate at both ends, smooth.

Courtallum, flowering July and August.

This is the only Indian species of the genus known to Professor Nees. This genus is distinguished from the following by having 2- not 4-celled anthers.

1820. PHOEBE PANICULATA (Nees), leaves obovato-elliptic, acute at both ends, reticulate beneath, the midrib, ramuli, and loose dichotomous panicles rusty, tomentose: lobes of the perianth, and the fruit ovate.

Neilgherries, &c. I have specimens from several stations, those from which the drawing was made were gathered in woods about Ootacamund, where the tree, a considerable one, is not uncommon. The under surface of the leaves are rather closely netted with thickish veins, and of a deep rusty brown colour.

1821. PHOEBE LANCEOLATA (Nees, *Laurus lanceolaria*, Roxb.), leaves oblong lanceolate, or lanceolate, with a long acumination at both ends: finely pubescent beneath: corymbs glabrous, spreading: the interior stamens hairy.

The figure is copied from Roxburgh's drawing, for which with all the others marked "Roxburghianæ," from the same collection, I am indebted to the kindness of Dr. Wallich, to whom the readers of this work are under great obligations for the many favours of the same kind received from him. The tree is a native of Silhet, and Nepaul.

1822. PHOEBE VILLOSA (R. W., *Laurus villosa*, Roxb. Fl. Ind. 2. 310), arboreous; leaves alternate, petioled lanceolar, 1-nerved: panicles axillary, and several round the base of the young downy shoots, villous: berries spherical, of the size and appearance of a black currant.

A large tree, native of Chittagong. This species does not appear to have been seen by Nees, as it is not noticed in his "Systema;" it seems, however, to be a species of the genus.

1823. PERSEA GRATISSIMA (Gært.), leaves ovate, ovate oblong, or obovate, somewhat acute at both ends, reticulate, pubescent beneath, 9-nerved (novem costatis), glaucous: lobes of the perianth about equal, oblong: ovary glabrous: berry large pear-shaped.

The drawing was taken from a cultivated specimen and introduced for the purpose of illustrating the genus. The fruit acquires a much greater size than those in the plate. They are known under the curious English name of Alligator pear. The tree is a moderate sized one, very branchy. The genus *Persea* is a large one, but seems only to include two Asiatic species, and both of these from the Eastern Islands.

1824. Machilus macrantha (Nees), leaves elliptic, acute, beneath glaucous, glabrous, penninerved: panicles large, pubescent, the ramuli divaricated, bifid.

Neilgherries, on the Northern and Western slopes. The tree is a rather low one, but the branches spreading and umbrageous; the leaves and panicles large, terminal; fruit globose, somewhat depressed, about the size of a large currant.

1825. Machilus glaucesens (R. W., *Phoebe glaucesens*, Nees), leaves oblong, lanceolate, acute at both ends, or acuminate; glaucous: panicles thyrsoid, forming terminal tomentose corymbs: fruit globose, slightly depressed, about the size of a small gooseberry.

Neilgherries, Western slopes.

I have ventured to change Nees' generic name, under the conviction that this is a true congener of the last, with which it so perfectly agrees that, but for the larger fruit of this, they are liable to be mistaken. My impression is that the plant named *Ocotea* (now Phoebe) *glaucescens* by Nees in my Herbarium, and which perfectly agrees with this, is not that species but one accidentally erroneously named, owing to the imperfection of the specimens. In this, when the fruit attains maturity, the leaves have become firm and coriaceous. Of the plant, in this state, I have specimens from the late Mr. Graham of Bombay labeled, "a large tree from the Ghauts."

Roxburgh appears to have fallen into a curious error with respect to this tree. His specific character is, "leaves alternate, narrow, lanceolate, tripli-nerved." While in his detailed description he describes them as broad lanceolar with "no tendency to the tri or tripli-nerve habit," hence the specific character seems to refer to one tree, the description to another.

1826–27 β Alseodaphne semecarpifolia (Nees), leaves obovate, cuniform, glaucous, glabrous, penninerved beneath: panicles terminal, cymosely umbelled on the ends of the branches.

I am indebted to Mr. Law of Bombay for the specimen represented in No. 1826, who sent it from Belgaum, that of 1827 I gathered at Courtallum. The larger one seems to correspond so well with the description of Heyne's specimen by Nees, but which had no station given, that I infer he must have found it in Mysore where he made considerable collections. The specimens of the smaller form were named by Nees "Alseodaphne semecarpifolia variat β, folius minoribus (2½–3 pollices, cum petiolo, longis, 10 lineas latis) paniculis depauperatis simplicibus." The two plants, when laid side by side, are evidently only varieties of the same species, and are readily recognised in the herbarium by the whitish pulverulence or bloom on the under surface of the leaves, which contrasts strongly with the dark upper one.

1828 Beilschmiedia Roxburgiana (Nees, *Laurus bilocularis*, Roxb., Fl. Ind.), branchlets, naked at the base, lobes of the perianth oval.

Calcutta Bot. Garden introduced from Tipparah.

The above very brief character is sufficient to distinguish this from the only other species of the genus. Roxburgh's character being more descriptive of the trees, I introduce it also: "arboreous with a straight trunk, and many far-extended branches: leaves opposite and alternate, broad lanceolar, veined: racemes solitary, under the leaves, or axillary: filaments without glands: nectaries nine, anthers bilocular: berries oblong, glaucous." In this character the "filaments without glands, nectaries nine," may seem at variance with the introductory description of the stamens of this order, but a careful inspection of the magnified figure will show that the discrepancy belongs to the language used, not to the flower. This his detailed description shows. The filaments of the third row have each 2 large pedicelled globular glands, and the fourth row are the usual staminodes. The glands and staminodes are all by Roxburgh designated "nectaries," and the glands having in this species a distinct pedicel he seems to have viewed them as independent of the stamens to the base of which they appertain; the simple character therefore is: stamens 9, the 3 interior ones glanduliferous, glands pedicelled; staminodes three, bearing cordato-sagittate rudimentary anthers. The six glands and three staminodes make up Roxburgh's nine nectaries.

Nees objects to Roxburgh's specific name "bilocularis," on the supposition that it refers to the ovary or fruit, which however is not Roxburgh's meaning, he simply refers to the anthers, which are two-celled not 4, the form he had observed in the other species of his genus *Laurus*.

1829. Cryptocarya floribunda (Nees), leaves oval oblong, abruptly short acuminate, coarsely venoso-reticulate and glaucous beneath; glabrous shining above; pubescent on the veins beneath: panicles axillary, the terminal one dichotomous, naked, yellowish tomentose.

Ceylon. All my specimens of this plant are from Ceylon. I have specimens of two others much resembling this, but apparently both distinct species, from Malacca. It is a curious genus, distinguished in the order by having the seed inclosed in, but not united with, the tube of the calyx, as shown in the longitudinal section of the fruit.

1830. Cryptocarya Griffithiana (R. W.), floriferous branches, petiols and costæ of the leaves rusty tomentose: leaves coriaceous, elliptic oblong, abruptly ending in a longish, narrow acute acumen, glabrous shining above, strongly reticulated, beneath mealy white between the reticulations; veins prominent, rusty pubescent: panicles axillary, racemose, much shorter than the leaves, densely rusty tomentose: ovary hairy: fruit globose? glabrous.

Malacca, Griffith. Apparently a considerable tree, but the specimens were unaccompanied by any note. The fruit shown on the plate had been perforated by insects, and when dissected were found mere shells, hence the doubt in regard to their forms, which when seen in a healthy state may be different.

In this species the staminodes are very acute.

1831. Haasia Wightii (Nees), leaves elliptic, acute at both ends, finely reticulated, of the same colour on both sides: panicles shorter than the leaves: lobes of the perianth deciduous: fructiferous pedicels straight, slightly thickening upwards, shorter than the peduncle of the panicle: staminodes present in the male flowers.

Courtallum, flowering August and September.

"This species differs from the rest in having staminodes, and the lobes of the perianth deciduous, by which marks alone it agrees with *Haasia media*, Blume. Perhaps it is the type of a distinct genus." —Nees.

The character of this genus is to have either hermaphrodite, or unisexual flowers, 2-celled anthers, and no staminodes: my plant has staminodes and hermaphrodite or bi-sexual flowers: the staminodes are large and conspicuous, flattened cordate at the base, perforated with pellucid points giving them quite a foliaceous appearance.

Nees describes the species as dioicous, and speaks of the ovary as rudimentary in the male flowers; such apparently is not the case in the flowers I examined.

I have another species from Ceylon so exactly corresponding in appearance, that it seems impossible to distinguish the two plants, but in it the staminodes are wanting, hence it is a true *Haasia* which the Continental one is not, in as much as it has parts not present in the original species. There is another plant in my collection, having much the habit of this genus, and wanting staminodes, but in it the anthers are 4-celled, showing that though it may belong to the "Tribe," it can scarcely belong to the genus.

1832. Sassafras Parthenoxylon (Nees, *Laurus porrecta*, Roxb.), leaves somewhat triplinerved, opaque: young corymbs terminal, appearing about the period of the expansion of the young leaves (corymbulis terminalibus subanthesi foliolosis). Nees.

Native of Sumatra, Roxburgh.

The appearance of the figure, which is copied from Roxburgh's drawing in the Calcutta Botanic Garden, does not quadrate with either the above specific character or with Roxburgh's description. I extract the following from Roxburgh's description. "Leaves alternate, petioled, veined, permanent, oblong, entire, generally acuminate, firm, both sides smooth, the upper polished, the under glaucous—3–6 inches long from 2–3 broad. Panicles lateral, scattered round the base of the young shoots, below their tender foliage, solitary, long peduncled, expanding, small, composed of a few diverging branchlets. Flowers numerous, pedicelled, pale yellow, calyx border divided into six, alternately rather smaller, oblong, obtuse, expanding segments, which are somewhat hairy on the inside." The drawing differs in showing the floriferous branch fully clothed with leaves, in other respects it corresponds with the description.

1833. Cylicodaphne Wightiana (Nees, *Tetranthera Wightiana*, Wall.), umbels racemose.

Neilgherries, Courtallum, &c.

A common rather large tree on the Neilgherries, at an elevation of from about 6000 feet to the top of the hills.

In this genus the flowers are dioicous. The male flowers usually 6-cleft, with 12 stamens, the interior six glanduliferous, extrorse and no staminodes. The female ones have 6 glanduliferous staminodes. The under surface of the leaves and racemes is clothed with rusty-brown pubescence. Fruit glabrous, the berry half immersed in the cup-shaped truncated tube of the perianth.

There is as yet only one other species of the genus, a native of Java, which is distinguished by having the umbels closer together, hence "umbellelis spicatis," constitutes its specific distinctive character.

Tetranthera.

This genus seems to require revision, since, as regards the variations of floral structure, found among the species now ranged under it, it appears rather complex and heteromorphous. When engaged in preparing the series of drawings for the elucidation of the genera of this order, I was, under the pressure of then existing circumstances, prevented going so fully into its examination as I could have wished, and have since done, otherwise I might have shown this more clearly than I have done, but still I think an examination of the plates appertaining to the "Tribe Tetrantheræ," will tend to lead others to the same conclusion.

Compare for example the plates 1834 and 1835 with 1838, all of which are referred by Professor Nees to the genus *Tetranthera*, and the difference between the two first and the last will be at once obvious. Compare again 1837 and 1838, which I have associated as species of the same genus, and the exact similarity will, I think, be equally obvious. According to my views, the two sets of forms cannot be associated under the same generic character, otherwise than by constructing it so loosely that almost all the tribe might be admitted into the genus.

Contrast again this grouping with No. 1837, the type of a distinct genus in which the real essential character rests on the compressed or lamellar form of the glandular appendages of the six interior stamens, as contrasted with the thicker glandular form of those of the other genera. "Lepidadenia est genus inter *Dodecadeniam* et *Tetrantheram* versans, flore pro familia eximio, diversum ab utroque *laminis petaloideis* planis obtusis subsessilibus loco glandularum terga staminum interiorum obvallantibus, ita, ut seriem quasi exhibeant petalorum, stamina sex exteriora ab interioribus separantium." This, as contrasted with the other, is to my mind too narrow a basis on which to establish a good genus.

To show this more clearly, I shall quote Nees' essential generic character of *Tetranthera*, under which he ranges a series of 44 species, many of them departing widely from the character. "*Tetranthera*, anthers 4-celled, cup of the fruit discoid. Three interior stamens biglandulose at the base. Leaves veined but not coarsely reticulate (Folia venosa nec admodum reticulata)." In his more extended character, he adds, "six gland-like staminodes attached by pairs to the three interior stamens, either sessile or stipitate."

On turning to the species ranged under this generic character, we find the four represented in plates 1834-35–36 and 38, not one of which, curiously enough, agrees with it. Then, as if to make the confusion greater, we find at the head of the character of the tribe, "Staminodia nulla." These discrepancies and want of precision of language, in calling the staminal appendages at one time glands, and at another staminodes when no true staminodes are present, make this a most difficult group of species to study, though, when properly understood, I see no reason why it should be more so than any other, since they are susceptible of as easy distribution into several well-defined smaller groups or genera, according to the views of the monographist.

The normal structure of the flowers of this order is not difficult to understand, as the diagrams show, and those of this tribe, with a few exceptions, do not essentially depart from it. The exceptions are found in plates 1834 and 35, and a few others in which the

D

lobes of the perianth are wanting, and the number of stamens proportionably increased. But while they thus essentially correspond, they present numerous and interesting variations available for generic characters. For example: In this tribe the rule is for the glanduliferous stamens to have introrse anthers; *Cylicodaphne* has 6 of them, all extrorse, and is by that single mark thoroughly separated from all the rest. *Polyadenia* has all its stamens, 6–9, biglanduliferous and introrse. *Laurus* has a 4-cleft perianth and 2-celled anthers; and lastly, *Lepidadenia*, as I understand the genus, has 6 biglanduliferous stamens, and introrse anthers which distinguishes it from *Cylicodaphne*. Nees' essential character of *Tetranthera* is to have the 3 interior stamens glanduliferous, introrse, and no staminodes, but from these characters many of his species depart. I would therefore suggest that the genus be recast and the species distributed into the following groups, premising however that, as I know but few of the species myself, the groups are suggested and limited by characters deduced from Nees' descriptions.

1st. All those species corresponding with plates 1834–35 in wanting, or in having the number of lobes of the perianth reduced, and the number of stamens proportionably increased, and in having pedicelled capitate glands, I propose uniting into one genus to which Thunberg's original name, *Tomex*, might be given.

2d. Those having a perfect six-lobed perianth, 9 fertile stamens, the 3 interior ones glanduliferous, and no staminodes, to be combined under the existing name of *Tetranthera*.

3d. Those having a six-lobed perianth and 12 stamens, the six interior ones glanduliferous, even although the inner three are imperfect (only staminodes) yet, if the filaments are glanduliferous, I would still unite them all (without reference to the form or texture of the appendage) with the genus *Lepidadenia*—as done in the 4 new species I have added to that genus.

4th. Roxburgh's *T. monopetala* seems to form the type of a new genus. It has 9 stamens and 12 glands —namely, the six exterior stamens (those next the perianth) have each one gland, and the 3 interior ones each two, a little above the base. The interior six are normal, the exterior six so far abnormal as to justify generic value being attached. It is certainly awkwardly placed in a genus whose character is to have the 3 interior stamens, only, glanduliferous.

Difficulties unquestionably lie in the way of thus simplifying the distribution of the numerous species ranged under this genus, owing to the tendency to depauperation, or suppression of some of the parts, which some, if not indeed most, of the species exhibit; but still, I think, if the plan was attempted some means of obviating that difficulty might be discovered, and greatly lighten the labours of those engaged in determining either already-described species or finding a place for such as might be still unpublished.

1834. Tetranthera tomentosa (Roxb.), flowers apetalous, umbels axillary, solitary, peduncled: leaves elliptic oblong, somewhat acute at both ends, beneath, with the petiols and young branchlets, whitish tomentose.

This tree has a wide distribution; the figure is taken from specimens obtained in alpine forests on the Bolamputty Hills near Coimbatore, but I have it also from Bombay, Ceylon, and Mergui.

This is a large and complex genus, exhibiting considerable differences in the flowers, in different species. The third or interior series of stamens have generally 2 glands at the base of each; but in this and some other species the perianth is depauperated and the number of stamens augmented; and the glands of the filaments, in place of being, as usual, sessile knobs, are elegant longish pedicelled, little spheres or globules: in the female the glanduliferous stamens are changed into somewhat strap-shaped staminodes, but retaining the glands.

1835. Tetranthera ligustrina (Nees), flowers apetalous, umbels axillary, usually solitary: leaves lanceolate obtuse, reticulately veined, glabrous, shining.

Neilgherries, frequent, Courtallum, &c. The peduncles of the umbels are represented a little too long. Nees assigns to this species solitary peduncles, but the plants from which the drawing was made show a plurality though they, undoubtedly, appear in all other respects the same species. They were obtained from the Neilgherries, and the excess may be the result of excessive luxuriance.

1836. Tetranthera Panamanja (Hamilt.), perianth six-cleft, umbels axillary and lateral, racemose: racemes many-flowered, longer than the petiols: leaves oblong, acuminate at both ends: exterior filaments strigose.

Courtallum. I introduce this species, though the figure is less perfect than I could have wished, as presenting a form very different from the preceding, and having the advantage of being named by Nees. The original specimens from which the species is taken up were gathered in Gualpara. Respecting my plant, Nees remarks, "variat foliis supra nitidissimis, racemis feminiis brevioribus (petiolo parum longioribus) rachi strictiori crassiorique." The flowers are too young to admit of satisfactory analyses being made from them, but I learn from Nees' description of the species that it will belong to the genus *Lepidadenia* if modified as above proposed.

Lepidadenia (Nees).

"Hermaphrodite. Stamens more than nine, the six inner ones furnished on the back with 2 sessile laminæ. Anthers 4-celled. Inflorescence umbelled, involucrate. Leaves veined, oblique." Nees.

When Nees constructed the above character he only knew one species, *L. Wightiana*. My herbarium furnished me with several others, all agreeing in the essential characters of having umbellate involucred inflorescence, with the two interior rows of stamens glanduliferous, and introrse 4-celled anthers, but wanting the lamellate glands.

These, whether correctly or otherwise, I have referred to this genus. Of the propriety of thus disposing of the two figured in Nos. 1839 and 40 doubts may be entertained as they are dioicous plants, and ought perhaps, on that account, to form the type of a distinct genus, but as so little is known of the original species I have thought it better to act on the views explained above than to risk the multiplication of genera in an order where they are already so numerous. The figures, so far as they go, will easily

suffice for the discrimination of the species, and should better acquaintance with them render their removal from this genus desirable, it can then be done.

1837. Lepidadenia Wightiana (Nees), leaves ovate, oblong, somewhat tapering at both ends, obtuse, coriaceous, entire, glabrous, shining above, beneath finely pubescent, penninerved: umbels racemose: involucre 4-leaved, somewhat tomentose: flowers bisexual, stamens 12, the interior 6 all glanduliferous.

Neilgherries. I have not been so fortunate as again to find this plant in the course of my recent excursions on the Hills. The figure accurately represents the specimen originally described by Professor Nees.

1838. Lepidadenia glabrata (R. W., *Tetranthera glabrata*, Nees), glabrous leaves oblong, lanceolate acute at both ends, shortly acuminate, coriaceous; glabrous shining above, pale beneath, penninerved: peduncles axillary, racemose: involucre 6-leaved, silky pubescent: perianth 6-parted; stamens 12, all fertile, the interior six glanduliferous.

I have this species from several localities, Pulney Mountains, Neilgherries, and Mergui, from Griffith. The specimen represented agrees in every thing with Nees' description, except in what relates to the stamens, "Stamina fertilia 9, triplici serie, * * stamina sterilia 3 centro proxima, * * singulis glandulis obovatis subsessilibus a tergo stipita." In my plants they seem all fertile, but even were it otherwise, I esteem this plant a truer congener with *Lepidadenia* than *Tetranthera*, and have therefore taken the liberty of removing it from the latter genus.

1839. Lepidadenia ovalifolia (R. W.), dioicous, leaves oval, obtuse at both ends, coriaceous, glabrous, shining above, pale (when dry, rusty-brown) beneath: umbels sessile, fascicled, axillary: involucre 4-leaved, slightly pubescent, perianth male, 4–6-parted, stamens 8–12, interior ones glanduliferous: female perianth 4- (always?) lobed, hairy within, bearing on the throat 4 sterile lanceolate glanduliferous stamens.

Ceylon. I have not, so far as I am aware, met with this plant on the Continent. This is one of those about which I feel doubtful as to the propriety of placing it in this genus.

1840. Lepidadenia Neesiana (R. W.), branchy, slender, apparently drooping, obsoletely 4-sided, rusty-tomentose: leaves coriaceous, oblong, oval, obtuse at both ends, shortly acuminate, or retuse at the apex; smooth glabrous above, glaucous and pubescent, penninerved beneath: nerves, petiols, and umbels, rusty-tomentose: umbels axillary, short pedicelled, aggregate: involucrum 4-leaved: perianth 8-cleft: stamens 16, the interior 8 glanduliferous, ovary apparently rudimentary.

Malacca, Griffith. The leaves as regards the under surface are almost identical with those of *Cylicodaphne Wightiana.* In the plate they are represented too acute and acuminate, neither has the artist succeeded in giving a good idea of the branch which, in place of being straight and rigid, is gracefully curved, but want of room to do it justice must bear part of the blame. But for the anthers being all introrse I should have referred it to *Cylicodaphne.* I do not look upon the extra number of parts as important in this order as they are liable to vary, and possibly flowers might even be found on the specimen with the normal number. I have named it in honour of the founder of the genus.

1841. Actinodaphne augustifolia (Nees), leaves sub-verticelled, about six, oblong lanceolate, cuspidato-acuminate, glaucous, glabrescent beneath, nerves rusty-coloured: ramuli and petiols rusty-brown: fascicles of the flowers compound, lateral.

Courtallum, Neilgherries, &c.

This genus is distinguished from the preceding by the absence, even in form of staminodes, of the interior row of stamens. This is a very conspicuous species from the great length and fine form of the leaves, the bright and delicate colour of which contrasts well with the tawny-coloured flower-buds.

1842. Actinodaphne speciosa (Nees), leaves round, cuspidate, many-nerved, (multuplinervibus) nerves thick below and, like the petiols and young branches, reddish-brown tomentose: flowers simply fascicled: staminodes in the female ones filiform, spathulate.

Ceylon. A considerable, erect, tall-growing tree. The leaves are very remarkable, large, nearly orbicular, very thick and coriaceous, almost woody, bullate, glabrous, somewhat shining above; below reticulated with numerous thick rigid veins, clothed like the branches, petiols, flower-buds, and flowers, with a thick coating of very dark rusty-brown coarse tomentum. In my specimens the flowers appear hermaphrodite, but the ovary is perhaps abortive, as Nees' were female, furnished with staminodes in place of fertile stamens.

I received my specimens of this remarkable looking and rare tree, from the late Colonel Walker, who was so much struck with its aspect that he was desirous, on the supposition that it must form the type of a new genus, that it should have the honor of bearing his respected name.

The figure does not convey a perfect idea of the aspect of the leaves, which indeed would be quite impossible with such artists as I have to work with.

1843. Actinodaphne melochina (Nees), leaves obovate, or elliptico-roundish, obtuse, somewhat triplinerved, rigid; the younger ones beneath, like the petiols and branches, brownish-rusty tomentose: female flowers simply fascicled, female staminodes oval, petaloid.

Ceylon. In this, as in the preceding, my specimens are those of the male or hermaphrodite plant, while Nees' were female, with sterile stamens. It has somewhat the habit of the former but is very distinct.

1844. Litsæa Ceylanica ♀ (Nees), leaves oblong, or lanceolate, attenuate at both ends, acuminate, triplinerved, glaucous beneath: ribs of the leaves petiols and young branches finely yellowish silky: flower-buds globose, contracted at the base.

Ceylon, Malabar, Western slopes of the Neilgherries, &c. In a former plate, 132, I gave a figure of the male plant taken from an indifferent specimen. In this one, I have given the female to complete the representation of the species. The genus, as regards the discrimination of the species, is far from easy, and as I have several more in my collection, I now regret that I did not introduce some others which I might have done, but happened unfortunately when working on this most difficult order to be otherwise

much engaged and pressed for time, which is the only apology I can offer for this and some other oversights which I have now reason to regret.

1845. Litsæa oblonga (Nees), leaves oblong, narrow at the apex, bluntish acute at the base, triplinerved, uniformly coloured on both sides, scrobiculately reticulated and, with the ramuli, glabrous.

Courtallum. The drawing was made from specimens named by Nees. They seem to differ but little from *Ceylanica*, except in being destitute of white bloom on the under surface of the leaves.

1846. Lepidadenia Griffithii (R. W.), every where glabrous: leaves oblong lanceolate, bluntish or sometimes cuspidate, coriaceous, slenderly penninerved, shining above, dull (when dried, brownish) beneath: umbels axillary, sub-racemose on short peduncles, long pedicelled: involucrum 4-leaved: perianth 6-lobed: stamens 12, six glanduliferous: perianth of the fruit cup-shaped, truncated, fruit globose.

Malacca, Griffith. For the reasons stated above, I have referred this plant here. Its principal peculiarity consists in the great length of the pedicels of the umbels, in which respect it is an easily distinguished species. The analyses of the flowers are taken from buds not quite opened, and may be incorrect as regards the relative length of the stamens and lobes of the perianth. I suspect, too, that it is dioicous, but on that point do not feel certain. The leaves are represented too sharp-pointed, many of them being quite blunt.

1847. Cassyta filiformis (Linn.), glabrous, spike simple, peduncled: flowers distinct, stamens of the outer series petaloid.

A parasitic herbaceous plant, extensively distributed over India, common in low shrubby jungles. In jungles of this description near the Red Hills, a few miles from Madras, it is very abundant.

It seems an unnatural proceeding to place this parasitic genus in the same family with the noble trees forming the bulk of this large order, but still it seems almost unavoidable so long as our ordinal characters are derived from the fructification, for in truth there is nothing in either the flowers or fruit to justify its removal. The habit, however, is so very remote from that of the rest of the order, that there seems but too good grounds, on that head alone, for following Lindley in separating it even though the flowers are so perfectly Laurinous.

Schmidia (R. W.).

Gen. Char. Bracts 2, free to the base, calyx entire, very short. Corolla tubular, opening obliquely; limb 5-lobed, reflexed. Stamens sub-didynamous, inserted near the middle of the tube, incluse; anthers 2-celled, straight, cells contiguous, parallel, prolonged below the point of attachment and each ending in a a longish subulate spur; no rudimentary filament. Ovary 2-celled, with 2 ovules in each; stigma entire, truncated: capsule globose at the base, ending in a conical beak, 2-celled. Seed sub-globose flattened next the partition.—A twining shrub, leaves opposite, broad ovato-lanceolate, acuminate, subcrenato-dentate, 3–5-nerved, glabrous: racemes axillary, long, pendulous, many-flowered: bracts small, subulate; bracteols large, sub-orbicular, reniform at the base, mucronate (nearly an inch in diameter); when fresh, one-half of a dark brownish-purple, the other pale yellowish, or cream-coloured. Corolla tubular, exceeding the bracteols, light blue, the lobes of the limb acutely turned back on the apex of the tube.

I have dedicated this handsome genus to the Rev. Dr. Bernard Schmid of Ootacamund, whose botanical collections have extended our acquaintance with the Flora of the Neilgherries and, but for the untimely death of Dr. Zenker, who had undertaken the publication of these extensive and valuable materials, would have proved of the greatest value to subsequent explorers of the Flora of these elevated regions.

Two genera, one of Grasses the other of Compositæ, have already, with the exception of a single letter, (the terminal t, which Dr. S. informs me does not belong to his name,) borne this name, and both are reduced. I trust this one will prove more fortunate. The genus is undoubtedly very nearly allied to both *Meyenia* and *Hexacentris*, but does not enter either.

1848. Schmidia bicolor (R. W.).

Western slopes of the Neilgherries below Sisparah. It is an extensive twiner and most conspicuous on account of its long racemes and large 2-coloured bracteoles, which are very remarkable. It flowers during the latter months of the year, and the fruit is ripe in February. I suspect it is a rare flowering plant, as I have twice visited the station in February and March, and only found a few seed: this season, 1850, I received specimens from three different persons, gathered in December and January.

1849. Casearia elliptica (Willd., D. C.), flowers 5-parted, ten-anthered: pedicels axillary, aggregated, 1-flowered: leaves elliptico-lanceolate, somewhat serrated, blunt, mucronate; the young ones velvety beneath.

A ramous rather large shrub, not uncommon in Southern India in jungles near the coast, especially in rather rich moist soil. It is frequent among the bushes usually found about old "Bowries" near pagodas. The leaves, if held between the eye and the light, are found perforated with numerous pellucid points in which there is a mixture of long and round ones, a peculiarity of such rare occurrence in the vegetable kingdom that it forms an ordinal character of much value. Roxburgh does not seem to have met with this species, as its flowers do not correspond with the character of those of any of his species.

1850. Gyrinops Walla (Gærtner).

Ceylon. Of this genus this is the only species, hence it can have no specific character by which to distinguish it.

The genus is distinguished by its tubular 5-cleft perianth, 5 sessile anthers opposite the lobes, a long stipitate ovary attenuated at the apex, a flattened globose stigma, and a long stipitate coriaceous capsule.

The plant as seen in dried specimens is of a brownish-yellow colour, the leaves elliptic oblong, quite entire, somewhat obtusely acuminate at the point, marked with finely transverse veins. Flowers yellow, about half an inch long, hairy in the throat and at the base of the tube, like the ovary. Endlicher assigns it a 1-celled ovary and 2 pendulous ovules. I find in my specimen the ovary distinctly 2-celled with 1-ovule in each, attached to the partition as shown in the plate.

1851. Blackwellia tetrandra (R. W.), leaves ovate, bluntly serrated, abruptly sub-acuminate: spikes about the length of the leaves, erect: limb of the perianth 8-parted, the interior lobes larger, intermediate glands sessile on the throat: stamens four, exserted, stigmas 4, filiform.

The station whence my specimens were obtained is not mentioned, but I have it from several stations; the Pulney Mountains, I think, one of them. In the analysis the artist has represented a 3-carpelled ovary and four stigmas. This I find an error, as on re-examination I can easily find 4-placentas, not three, as shown in the plate. As however his skill in making these dissections is greater than mine, and his sight better, I hardly feel myself at liberty to set this discrepancy down as an error, since it seems possible he may have stumbled on an accidental variety. According to theory, there should either be 2 or 4, not three; the latter I found in several instances.

1852. Thesium Wightianum (Wall.), suffruticose, diffuse, procumbent: leaves narrow linear or somewhat subulate: flowers terminal, solitary on the points of the young shoots, 5-cleft, minute; lobes of the perianth ciliate. Anthers roundish, glabrous.

Neilgherries, frequent in grassy pastures. A very inconspicuous plant, but from its abundance not likely to be overlooked. This, so far as I am aware, is the only species of the genus found in Southern India. One species is described by Mr. Edgeworth from the Himalayas, but it is very different from this, having racemose flowers.

In this species the flowers are usually solitary, surrounded with a whorl of 4 leaves, the outer pair larger; sometimes there are two flowers from the same branch, but so far as I have noticed this is rather rare.

The hairy anthers which have accidentally found their way into the upper corner of the plate do not belong to this plant.

1853. Osyris Wightiana (Wall.), shrubby, very ramous, everywhere glabrous; young shoots 3-sided, with prominent sharp angles: leaves from oblong ellipticо-lanceolate to elliptic obovate, mucronate: male flowers umbellato-capitulate, peduncles axillary, shorter than the leaves, 6–8-flowered, female peduncles axillary, 1–3-flowered, lengthening as the fruit advances: ovary conical, limb of the perianth 3-lobed, spreading: anthers often polleniferous, style short, stigma 3-lobed.

An alpine plant, found on almost every high range of hills. I have specimens from all quarters, Ceylon, Ghauts near Bombay, Pulneys, Neilgherries, Belgaum, &c. It does not however seem to extend so far north as the Himalayas. Among my specimens I find some of the male flowers covered with short thick hairs as shown in the plate, others perfectly smooth. The difference I think accidental, and not of specific value.

1854. Sarcostigma Kleinii, (W. & A.)

Courtallum, Alway in Malabar (near Cochin). This is the only species yet known of the genus, and the male flower has yet to be discovered. It is a climbing branchy shrub with alternate short petioled, oblong oval, acuminate, coriaceous, glabrous, leaves. The venation in the dried specimen appears raised and minutely reticulate from the shrinking of the parenchymatous matter of the leaf. The racemes are usually paired, axillary, very long, interrupted; the flowers forming numerous sessile fascicles, not properly capitulate, as represented in the figure, but side by side on the rachis, without the least appearance of pedicel. The fruit is an oval somewhat flattened nut, about an inch long, and half an inch broad, the seed exalbuminous, filling the whole cavity. The stamens shown in the figure are rudimentary, without pollen.

1855. Hernandia sonora (Linn.), leaves peltate.

The specimen from which the drawing was made I received from Ceylon. I do not know whether it is indigenous there, but it is so in the Eastern Islands, and is figured by Rumphius in his Herbarium Amboinense. It is introduced here with a view to giving Indian Botanists the means of determining by comparison, any new genus referable to this order. The glanduliferous stamens, similar to those of *Lauraceæ*, furnish a generic, not an ordinal, character. The other species have ovate leaves; hence the present is distinguished by the brief character given above.

1856. Elæagnus latifolia (Linn.), leaves ovate, oblong or elliptic, acute: flowers axillary, solitary or two or three together, fruit drupaceous, succulent, red.

Common in alpine forests, very abundant on the Neilgherries where it forms a large almost arboreous climbing shrub. I do not know in what respect this differs from Roxburgh's *E. conferta*, which, so far as I can judge from description, it greatly resembles. Possibly his plant is not distinct from the Linnæan one. The species of *Elæagnus* are now numerous, but the distinctive characters not always very obvious as the species seem variable. The one here represented certainly is so. The fruit is edible, and moreover forms a good tart fruit.

1857. Pyrrhosia Horsfieldii (Blume), leaves alternate, oblong, acute, veined, rusty pubescent beneath: flowers capitato-panicled. *Spreng*.

Ceylon. I am indebted to Mrs. Col. Walker for the very perfect drawing from which this plate is taken. The male branch is somewhat reduced, the female one, fig. 10, about the natural size, as are figs. 1, 2, and 3; from 4 to 9 are all magnified; 4, female flower opened, 5, in its usual state, 6, germen and stigma, 7, group of female flowers, 8, male flower opened, 9, the same in its usual state.

This plant has thrice passed through the ordeal of naming. First, Willdenow called it *Horsfieldia odorata*. Sprengel reduced that name and called it *Myristica Horsfieldii*, which name I at first adopted; and then Blume gave it its present, which I hope may now be permanent, even though the distinction seems to be as much due to habit as to structural characters, which seem barely sufficient to keep the two genera distinct. The seed of this genus want the aromatic properties of the true nutmeg.

1858. Aristolochia lanceolata (R. W.), leaves short petioled, sub-cordato-truncated at the base, tapering to the point, glabrous: flowers axillary, solitary, or paired, pedicels exceeding the petiol: lip of the calyx linear obtuse, somewhat calcarate at the base.

No station is mentioned, but I think I obtained the specimens from the Balaghaut Mountains near Madras. As a species it is nearly allied to *A. Indica*, but I believe quite distinct.

E

1859. Gnidia eriocephala (Meisner, Gardner), shrubby, branches dichotomous, young shoots leafy: leaves alternate, short petioled, lanceolate, acute, mucronate; slightly tapering towards the base, glabrous on both sides: heads of flowers terminal, many-flowered, involucrate: scales of the involucre ovato-lanceolate, acute; silky pubescent on both sides: flowers pentamerous, clothed with long white hairs.

A common plant in alpine and sub-alpine jungle. It is very common on the Neilgherries, but I have met with it in many localities; it is also a native of Ceylon, and I think of the Tenasserim Provinces. Professor Meisner described this plant, under the same name previous to Mr. Gardner, I therefore give him as the original authority for the name, but adopt Gardner's character, as being constructed to distinguish it from another which Meisner had not seen.

1860. Gnidia Sisparensis (Gardner), sub-arboreous, branches dichotomous, young shoots glabrous, leafy at the apex: leaves alternate, sub-sessile, oblong, obtuse or slightly retuse, glabrous on both sides: heads of flowers terminal, many-flowered, involucrate: scales of the involucre ovate oblong, obtuse, silky-villous on both sides: flowers pentamerous, clothed externally with long brownish hairs.

Sisparah, Western slopes of Neilgherries, on the margins of woods, common. In its general aspect this plant is so like the other that it might be passed as such, but on closer examination it proves a very distinct species. The point that first attracted my attention was the difference in the colour of the hairs of the heads of flowers, tawny brown in this, almost snow-white in that: further examination showed many other minute differences.

1861. Cansjera Rheedii (Gmelin) shrubby, scandent, young shoots velvety: leaves short petioled, broad ovato-lanceolate, acute, glabrous, somewhat succulent: spikes axillary or paired, compact: rachis and tube of the calyx densely clothed with short appressed hairs: calyx 4–5-cleft, stamens 4–5: staminodes fleshy, somewhat 3-toothed at the apex: fruit oval, about the size of a common bean.

The plant here figured is not by any means rare in Southern India, and is evidently the same as Rheede's, Hort. Mal. 7–t. 2, but possibly not the same as Roxburgh's *C. scandens*, for which he quotes Hort. Mal. 7–t. 4. as most correctly representing it, remarking, at the same time, that the other, "7 tab. 2, appears to be the same plant." My impression is that they are distinct species.

This remark applies to the plate only, for I have not the description by me for reference. However that may be, I hope justice will in future be done to Gmelin by the adoption of his name which, so far as I can make out, can claim 7 or 8 years priority in its favour. There are however 2 species in India, one with fruit about the size of the common horse-bean, such as are here represented, and the other, having fruit as large as a full-sized olive. The former is the *Cansjera scandens* of Roxburgh, the latter, *Ximenea olacioides*, W. & A. Unfortunately I did not discover this until long after the plate was printed, otherwise both forms might have been included in it. The plant and flowers seem the same, or nearly so in both, the fruit only differs, and that most conspicuously, in size, and to some extent in structure.

When naming the drawing I inadvertently referred this genus to *Thymaleæ*, the order in which it was formerly placed, instead of to *Olacineæ*, the one to which it really belongs.

The part represented at fig. 8 of the plate, is a group of young fruit, and is quite correctly shown, with the exception of the hairs, which do not belong to them. They have the appearance of some taken from a pod of *Mucuna*, or capsule of a *Sterculea* which had adhered to them in the vasculum, and which, through the carelessness of the artist, are introduced as if part of the plant.

Euphorbiaceæ.

This, though a very large order (200 genera and about 2500 species) and complex in its affinities, is yet one which may be said to be generally easily recognized by the almost constant presence of a few easily-observed marks.

The flowers are very constantly unisexual, or in other words the stamens and pistil are in different flowers. The ovary is about as constantly 3-celled, with the ovules—one or two—pendulous from the top of the cell. The seed moreover are generally albuminous.

It may, perhaps will, be objected to the first of these that, in *Euphorbia*, the type of the order, the flowers are bisexual, or have both male and female flowers within the same calyx. This is apparent, not real, the supposed calyx being a cup-shaped involucre, each stamen within which is a distinct male flower, and, as in those of a sun-flower or other Composita, they open in succession, never more than two or three being apparent at the same time, though the involucre is full of others progressively pushing to the light. They for the most part have each one or more bracts at the base of the pedicel, and in some species a rudimentary calyx at the joint where the pedicel ends and the flower begins. The same is the case with the fructiferous flower which is at first within the cup, then the pedicel gradually elongates until the ovary and styles, which in fact constitute the whole female flower, appear beyond it. Sometimes however it, too, has a distinct though rudimentary calyx, as shown in the following plates.

That this explanation, of the economy of these curious flowers, is not a case of stretching a point to support a fanciful theory may be learned from the Fig, which is just such another involucre, covered inside with flowers: females below; males round the apex. The Rose, too, furnishes an example of the same kind, the hip or fruit of which is an involucre studded all over with female flowers, each having its own style, which, protruding beyond the throat of the involucre, mixes with the exterior stamens and thereby fertilizes the ovary within.

The numerous genera of the order are grouped into tribes, first according to the number of ovules in each cell of the ovary, and then according to the greater or less perfection of the flowers.

The following are the essential characters of the "Tribes," which I copy from Lindley's Vegetable Kingdom.

1st. Euphorbieæ. Ovule solitary. Seeds albuminous. Flowers monœcious, apetalous, male and female mixed in a cup-shaped involucre.

Dalechampsia is placed in this tribe, but does not well accord with its character. Judging from the Indian species only, this genus would require a tribe for itself.

2d. Hippomaneæ. Ovules solitary. Flowers apetalous, in spikes: bracts one- or many-flowered.

3d. Acalypheæ. Ovule solitary. Flowers apetalous, in clustered spikes or racemes.

4th. Crotoneæ. Ovule solitary. Flowers usually having petals, in clusters, spikes, racemes, or panicles. In this tribe the higher development of the flowers, as shown by the presence of petals, is made use of in grouping.

5th. Phyllantheæ. Ovules in pairs. Stamens in the centre of the flower.

6th. Buxeæ. Ovules in pairs. Stamens inserted beneath the sessile rudiment of an ovary.

Illustrations of each of these tribes will be found in the following plates, in which I have made it a principal object to represent as many genera as possible; about 40 having found places, in this series, will give a fair idea of the Indian branch of the order. More of course might have been given, but other orders must in that case have suffered, as my space is now limited.

On the affinities of this order and the place it should occupy in the system of vegetables, two adverse opinions prevail, Jussieu and his followers believing that its proper place is in the diclinous apetalous class; while Lindley and those who coincide in opinion with him place it among the polypetalous orders, as one "losing its petals in part of its species." Lindley says, "But if, instead of considering the imperfectly developed genera of Europe as typical of the true structure of the order, we look to those of tropical countries, we find that the apetalous character by no means holds good in them............ upon looking through the genera described by Adrien de Jussieu in his monograph, it appears that out of 61 genera no fewer than 32 have petals. The tendency of the order is, therefore, at least as great to form petals as to want them. Now if this be so, and *the separation of sexes is disregarded*, it will be found," &c.

Such being the two sides of the question, I do not presume to sit as umpire between the adverse parties, but would ask in my own name, *Why disregard the separation of the sexes?* why throw out of consideration a circumstance so very constant throughout the large assemblage of plants brought together under this family name? If separation of sexes is, as it generally is, to be viewed as an indication of diminished perfection in the floral development, then the very extraordinary circumstance of about 2500 species, all belonging to one natural order and all agreeing in that particular, seems at once to stamp the order as one which ought to occupy a lower grade in the series than those furnished with the most perfect and complex floral organization met with in the vegetable kingdom. Add to the universal imperfection of sexual separation, the want, in at least one half the species, of one of the floral verticels and in many others both, and we can scarcely, I think, help arriving at the conclusion that, in place of this being a polypetalous order, losing its petals in a part of its species, it is in truth a most unequivocal diclinous one, striving, as it were, to raise itself in the scale, by getting them in as many of its species as it possibly can, and as if to show its inability to raise itself higher, we find in some genera petals in the male flower but wanting in the female. Coinciding then with those who view separation of sexes in plants as an indication of a lower grade of development than their union in the same flower, I would, in any arrangement I had to propose, place this order among the diclinous ones. This Lindley has done in his "Vegetable Kingdom" and, to my mind, thereby greatly improved on the arrangement of his Nixus, and the 2d edition of his Natural System, in which last and in Endlicher's Genera Plantar. it has always appeared to me misplaced and stationed among unsuitable company.

1862. Euphorbia Nivulia (Hamilton), branches round, naked below, leafy on the apex: stipulary spines naked, paired, spiral: leaves terminal tongue-shaped, mucronate, fleshy.

Arid rocky hills near Coimbatore, also frequent in similar localities in the Madura District.

This plant attains the size of a large shrub. The branchlets come off in whorls of four. The leaves are deciduous during the cool season and the plant is usually naked in January and February. In March, when being clothed with new foliage, the flowers make their appearance. The first that opens is usually sterile (that is, wanting the pistil), which is shortly after followed by two lateral fertile ones (furnished with both male and female organs), which ripen their seed in April and May. The stamens, or more properly the male flowers, are each furnished at the base with a large obovate cuniate fringed bract, but is destitute of the calycine appendage at the joint.

The leaves are from 4 to 6 inches long by from 1½ to 2 broad, near the apex, whence they taper towards the base; smooth shining glabrous, quite entire, succulent.

In the above description, I have spoken of the flowers as understood by Linnæus and the older Botanists, not as viewed by modern ones, that is, as an involucre containing an indefinite number of monandrous male flowers surrounding a solitary female one, supported on a more or less elongated pedicel by which it is protruded beyond the cup of the involucre; the whole together forming not a single flower, but a capitulum, as in *Compositæ*.

1863. Euphorbia trigona (Roxb.), shrubby, erect, 3-sided with prominent repand angles: stipulary spines 2 or sometimes 4: leaves deciduous obovate, cuniate: peduncles above the axils, 3-flowered; the middle one sterile the lateral ones fertile: flowering after the fall of the leaves.

Rocky arid hills near Coimbatore, flowering February and March.

The drawing was made from a young plant which flowered in my garden. The leafy branch exhibits the plant in leaf, the flowering one was taken from a branch which flowered for the first time and only produced male flowers. The dissected flowers were obtained from wild plants, perhaps, too young, as the female flower is almost sessile not as usually seen, supported on a long pedicel.

The vertical section at No. 5, shows the gradation of male flowers which continue, for some weeks, successively to appear above the edge of the involucrum. The tube of the involucre is filled with numerous petaloid deeply lobed and fringed bracts. The sterile flower is nearly sessile, the fertile ones pedicelled.

Roxburgh obtained the plants from which his description was taken from Malacca, but they seem to correspond so well with mine that I could not venture to view the 2 plants as distinct species. Figures 8 and 9 of the plate show the two kinds of flowers, as seen after the removal of the involucre.

1864. Euphorbia Rothiana (Spreng., *E. læta*, Roth.), leaves oblong lanceolate, tapering towards the base, glabrous: whorl 3–5-branched with occasionally several axillary branches below: branches 2 or, in old plants, 3 times dichotomous, with broad cordate sub-perfoliate bracts at each fork: flowers solitary in the fork: ends of the glands of the involucre prolonged, tooth-like: involucre ciliate on the margin: stamens furnished at the base with a filiform pubescent scale, seed glabrous.

A very common alpine plant, found on nearly all the higher hills that I have visited. I have specimens from Mahablishwar, and Ceylon, and from numerous intermediate stations. It seems curious that a plant so extensively distributed should be so imperfectly known. I cannot find any description that accords with this plant, and adopt the present name because I feel sure that I can quote an authority for it, but not a satisfactory one, in as much as Roth describes a rather rare variety; but on the other hand, Mr. Bentham has, in Wallich's list, ranged Heyne's *E. læta*, and my *E. segetalis* (this plant) under the same number, as being identical. I do not however expect that when the genus has been thoroughly revised that the name here given can be retained. Roxburgh's *E. glauca* seems to be this plant, but I suspect not Willdenow's, which is from New Zealand. In characterizing this species, I have avoided the term umbel, as applied to the terminal whorl of floriferous branches, on the supposition that it is erroneous, as shown by the often many similar lateral branches which spring from the axils of the leaves below.

1865. Excæcaria crenulata (R. W.), arboreous, diœcious or rarely monœcious, leaves opposite, oblong, lanceolate, crenulate, acuminate, coriaceous, glabrous: male spikes axillary or from the ends of the branchlets, solitary: anterior bract entire, coriaceous on the margin, the small lateral ones and sepals membranous, fimbriato-serrated: female spikes axillary, 2–3-flowered: bracts and sepals as in the male.

A rather common small tree in alpine jungles. I have gathered it in many localities, but have rarely met with it exceeding a foot or 18 inches in circumference but tall in proportion; from 20 to 30 or even 40 feet in height. The whole plant is very milky and the milk very acrid. On one occasion, when cutting down a tree, I saw instantaneous and intense ophthalmia produced by a particle of the milk accidentally falling on the eye.

It seems curious that this tree should remain still undescribed, for I have often met with it.

In its relations it stands next to Griffith's *E. oppositifolia*, and is so near, that it seems difficult to define their limits, though certainly distinct. Griffith in his remarks on *E. oppositifolia* observes that "although it presents differences, especially in habit, from *Excæcaria*, I have considered it best to refer it to that genus." To show the soundness of this conclusion I have given analyses (Fig. B. in the plate) of *E. Agallorha*, the type of the genus, which will show how perfectly identical the characters of the two plants are.

The figures 1, 2, 3, in the plate, are taken from young flowers not perfectly opened. Fig 7, exhibits one of those rare cases showing a tendency to a return to monœcious habit by the production of a female flower at the base of the spike. The character of the tree, if monœcious, is to have the female flowers on separate branches.

1866. Falconera Malabarica (R. W.), stamens somewhat exserted: ovary 3-celled; petiols glanduliferous at the apex

Malabar, and Western slopes of the Neilgherries.

We are indebted to Dr. Royle for the genus *Falconera*, founded on two Nepaul trees. The peninsular species differs from both his in its 3-carpellary 3-celled ovaries, his having only two; in all other respects my plant perfectly agrees with his, and approaches so near *F. Wallichiana*, of which I have a male specimen, that I should probably have referred it to that species but for its 3-celled ovaries, and the petiols being glanduliferous at the apex, in place of the base.

Dr. Royle refers the genus to the order *Antidismeæ*, which somewhat surprises me, as it is evidently Euphorbiaceous, and indeed so near *Sapium* that I think it might have been admitted into that genus without much straining, and I almost suspect will yet be referred to it. The habit is adverse, and its very decided diœcious character may probably keep the two genera distinct, but scarcely the floral structure. In support of this view, I shall introduce into my next part illustrations of the genus *Sapium*.

1867. Gelonium lanceolatum (Willd.), leaves lanceolar, entire: flowers crowded but distinct: stamens numerous: capsules tricoccous.

Balaghaut Mountains, near Madras.

Roxburgh, who describes this plant from Bengal specimens, does not seem to have met with it to the Southward. Willdenow, however, the authority for the species, received his specimens from Dr. Klein, whose researches did not extend much beyond Madras. The leaves are perfectly glabrous, quite entire, somewhat coriaceous, and in drying become of a pale greenish-yellow colour. In the plate I find I have erroneously quoted Roxb., in place of Willdenow, as the authority for the species.

1868. Adelia neriefolia (Roxb.), shrubby; leaves alternate, linear lanceolate: spikes axillary, solitary.

In low moist soil on the banks of streams and canals, not uncommon. I have often met with it in the Carnatic. In the Coimbatore district it is frequent in such localities.

1869. Adelia retusa (J. Graham), a low shrub, leaves alternate, sessile, obovate cuniate, retuse, slightly crenate: flowers axillary two or three together, stamens very numerous.

Banks of the Cavery about Errode, frequent, Deccan generally, Gibson; Circars, Walter Elliot, Esq.

The drawing is taken from specimens gathered on the banks of the Cavery, most likely the produce of seed carried down by the stream from the Deccan. I have not got the female plant.

1870–71. Trewia nudiflorÆ (Linn.), arboreous leaves ovate oblong, acuminate, quite entire, glabrous: male racemes long, pendulous: female flowers solitary or paired, styles 3-4, long plumose.

An extensively distributed tree: common about Coimbatore on the banks of tanks and near water courses, flowering during the hot Spring months.

The history of this plant is curious. It was first made known through the medium of an indifferent figure in the Hort. Malab. (1 tab. 42). Linnæus thence took it up and named it, but apparently without having seen a specimen as his character is very faulty, and he places it in his class Polyandria Monogynia. Burman (Fl. Indica) followed and, apparently being equally unprovided with good materials, placed it in the class and order Monœcia, Tetrandria, quoting Linn. and Rheede. Willdenow, having got specimens, next described it in a periodical publication, under the name of *Rottlera Indica.* Subsequently, becoming aware that his *Rottlera* was the Linnæan *Trewia*, he reduced his genus and adopted the older one, but with a slight error in the generic character, "masculi, cal. 3-phyllus." In the interval, Gærtner had obtained a fruit, a figure and analysis of which he published, but with the error of representing the seed exalbuminous! Roxburgh, being well acquainted with this tree, gave an amended and correct generic character, pointing out Gærtner's error, by describing the embryo as "inverse and amply furnished with a perisperm" (albumen). Endlicher omitted it altogether in the body of his Genera Plant., but afterwards gave it in his 3d Supplement. And Lindley, in the second edition of his Natural System, misled I presume by Gærtner, made it the type of a new order, in which he was followed by Meisner. Lastly, Dr. Klotch, having obtained access to good materials, published a revised character, showing that it was truly a Euphorbiaceous plant, and has thus finally cleared up the botanical uncertainties which had previously attached to this very common tree.

In his generic character, Dr. Klotch describes the calyx of the male flower as "diphyllus foliolis profunde bifidis." I have not at this time (November) recent flowers before me to determine this point, but so far as it can be made out from dried ones, carefully softened, I cannot make out that structure; the calyx appearing to me distinctly 4-sepaled.

1872. Hemicyclia sepiaria (W. and A.), a large ramous diœcious shrub, with alternate, elliptic, obtuse, coriaceous, glabrous, leaves: axillary, usually aggregated, longish pedicelled flowers: male flower 8-androus with 4 sepals: female subsessile, peduncle afterwards elongating: ovary seated in a fleshy disk, 2-celled, crowned with 2 sessile, semicircular, stigmas (hence the generic name), fruit drupaceous, globose, one-seeded by the abortion of the other ovule: seed somewhat lenticular, arilled at the base: embryo central, cotyledons foliaceous, enclosed in copious albumen.

My specimens, which were obtained from the neighbourhood of Tuticorin, are deficient in female flowers, hence their absence in the plate.

The wood of this shrub seems to be very hard and close-grained, something like box.

1873. Rottlera peltata (Roxb.), arboreous, leaves long petioled, cordato-peltate, acuminate, downy; racemes terminal and lateral, solitary (always ?), capsules covered with villous filaments. Roxb. Malabar, Neilgherries, and in sub-alpine forests along the Ghauts, not unfrequent.

This plant corresponds in so many important particulars with Roxburgh's description, that I could scarcely venture to give it a new specific name on account of the discrepancies it presents while unacquainted, except by description, with his plant. Mine differs in its panicled terminal inflorescence, and the rusty-brown colour of the pubescence on the young shoots and under-surface of the young leaves. That on the latter afterwards becomes pale, and in some specimens whitish. The inflorescence is also at first tawny but, like the leaves, becomes paler. The stigmas in my plant do not quite correspond, "styles ¾ths three-cleft, segments hairy; stigmas simple," in his; in mine, the stigmas are large tongue-shaped and plumose, but on the other hand the capsules "covered with pretty long hairy filaments" is a character so marked and peculiar, combined in both with peltate leaves, that nothing short of an inspection of original specimens could set it aside. I have another species with peltate leaves, but not otherwise corresponding.

The female calyx in both is 4-lobed, in mine the number of cells of the ovary varies, three or four. I have not seen ripe fruit.

1874. Croton umbellatum (Willd.), leaves ovate oblong, acuminate, entire, glabrous on both sides: flowers umbelled, terminal.

Courtallum, and elsewhere in sub-alpine jungles. I am uncertain whether this shrub is a genuine number of the genus as now defined, but it is certainly Willdenow's plant, as I possess original authentic specimens thus named from Klein's Herbarium.

1875. Fluggea leucopyrus (Willd.).

A common shrub in low stunted jungle, but so variable that I apprehend there are more than one species in India, though one only has yet been named and described. On the Eastern slopes of the Neilgherries a very distinct form occurs in great abundance, flowering during the earlier months of the year, and much more luxuriant than any I have seen on the plains. It is perhaps a distinct species, a point which I regret to say I have never determined by careful comparison. The plant here represented, corresponds, in regard to the female flower and fruit, with Willdenow's description, but not with Roxburgh's, as the latter assigns three 2-cleft stigmas and a 3-celled fruit in place of 2 two-cleft styles and a 2-celled, fruit. If both are correct, it seems to imply that there are two species.

1876. Putranjiva Roxburghii (Wallich), leaves alternate, narrow oblong, acutely serrulate: flowers triandrous; filaments more or less coalesced: drupes ovate.

Paulghaut Jungles.

The plant here represented I find accurately corresponds with Roxburgh's description, so far as my specimens permit comparison, for, unfortunately, I have not succeeded in finding the male tree. Dr. Royle has published in his Illustrations of the Himalayan Flora, figures, under the same name, of what appears to me a distinct species. His plate represents a tree with elegant drooping branches, entire, somewhat elliptic, obtuse leaves; solitary female flowers, and globose fruit: presenting altogether an

F

aspect very different from our tree. Though aware of these differences, when naming my drawing, I adopted the same specific name, under the conviction that this is really the plant Roxburgh describes.

In regard to the natural order of this genus, Wallich and Royle coincide in referring it to *Myricaceæ*. Endlicher considers it a sub-order, allied to *Antidesmeæ;* while Meisner makes it the type of the *Putranjiveæ* order. I do not clearly understand on what ground so much discrepancy of opinion prevails as I can see no reason for considering it other than a purely Euphorbiaceous plant of the tribe *Buxeæ*, with which it accords in every particular of the slightest moment. I find that I coincide with Lindley in this view, he placing the genus in the same order and tribe that I had done, as the result of independent examination.

1877. Sarcococca trinervia (R. W.), leaves bifarious, 3-nerved, oblong lanceolate, entire, acuminate at both ends, glabrous: spikes axillary, dense, about the length of the petiols, male flower above, female below.

Neilgherries, Pulney Mountains.

This is a common and very pretty shrub on the Neilgherries, especially in woods where it appears as an undershrub. The leaves are a very bright lively green, somewhat paler beneath, the flowers pale yellowish, but certainly not conspicuous.

The only other species of this genus is a native of Nepaul and Ceylon, and differs from this in having ovate acuminate not 3-nerved leaves. Apart from the flowers, which have no beauty, this is a rather pretty evergreen, always covered with lively green handsome foliage.

Goughia (R. W.).

Gen. Char. Diœcious, male perianth rudimentary or wanting, consisting, when present, of a few almost inconspicuous scales attached to the apex of the pedicel. Stamens about 8 (sometimes 6 or 7 by abortion), filaments short; anthers large, oblong, mucronulate, 2-celled, bursting longitudinally. Female perianth 4-lobed, often rudimentary. Ovary free, 2-celled with two pendulous ovules in each; styles 2, short, reflexed, each ending in a flattened papillose stigma. Fruit sub-baccate, ovoid, crowned with the persistent styles, one-seeded by abortion. Seed ovoid, embryo minute in the apex of a large soft fleshy albumen, radicle superior. A rather small very ramous tree: leaves alternate, elliptic, obtuse, entire, glabrous, dark green above, glaucous beneath, inflorescence racemose; racemes axillary on the young terminal shoots of the season: flowers small, anthers purplish or brownish-red: female, greenish: fruit pulpy, purplish when ripe.

This very distinct genus was dedicated, in MS., upwards of 10 years ago, to my much esteemed friend Mr., now the Hon'ble, George Gough, at that time engaged, in company with Captain Munro, in exploring the Neilgherry flora, from whom I then received specimens. It affords me much pleasure, at this late date, to find it still an unpublished genus, and to be thereby enabled to publish it under the name it has so long borne in my Herbarium. Had I not felt uncertain as to the natural order, regarding which I found difficulty in satisfying myself, I should have published it long ago. At one time I thought it referable to *Antidesmeæ*, but not feeling certain I thought it well to delay its publication until I had leisure to examine in detail the monochamideous orders. In the course of that examination I was led to the conclusion that my first view of its affinities was erroneous, and that it is a truly Euphorbiaceous plant.

Of this genus I possess two, perhaps three, species, viz. the present, one from Ceylon, and one from Malacca. Of the Ceylon one I still feel somewhat uncertain, as it greatly resembles the Continental plant, and I have not seen male flowers; but the Malacca one departs so widely that I am doubtful whether it may not furnish the type of a new genus. The following copy of a note, attached to the specimen, which I wrote when I first examined it, will explain this. The specimen was sent by Mr. Griffith, labelled simply, "*Goughia*?? Malacca." The reply to the query is, "I suspect not, the flowers here being regular, viz. sepals 4, stamens 4, opposite the sepals, with a central elevated hairy receptacle or abortive ovary. In this plant, moreover, the pollen is globose and hispid, in the Neilgherry one, glabrous and angular. The habit and form of the leaves of the two, however, perfectly agree, with the exception of the inflorescence which in the Malacca plant is paniculato-umbellate; (each ramulus of the panicle only in simple umbel of 8 or 10 short pedicelled flowers). The female flower, when discovered, may reduce the value of these differences."

On reconsidering the question now, I attach less weight to the above differences than I did then, and think that a slight modification of the generic character will serve to retain them in the same genus. As regards habit and family likeness, they are brothers. The generic character, should the structure of the female flower admit of their union, might be thus modified: Diœcious: male-perianth, sepals 4, imbricating, or rudimentary or wanting. Stamens, in sepaled flowers, 4, opposite the sepals, when the sepals are wanting, 8 or sometimes fewer (6–7) by abortion: when 4, inserted round the base of a rudimentary ovary: anthers, &c.

The specific differences will then be—

1. *G. Griffithiana*, male flowers 4-sepaled, 4-androus. Leaves petioled, sub-obovate, very obtuse; (turning yellow in drying): inflorescence panicled, each ramulus of the panicle ending in a small simple umbel of 8–12 short pedicelled flowers.

2. *G. Neilgherrensis*, male 8-androus, sepals rudimentary or wanting.

The Ceylon form, though it looks distinct, does not, the male plant being unknown, furnish sufficient specific marks for its separation from the Neilgherry one.

1878–79. Goughia Neilgherrensis (R. W.).

A small tree common on the Neilgherries, Pulneys, Ceylon? flowering during the autumnal months, but may I believe be met with in flower at all seasons. The leaves have a tendency to turn yellow in drying like those of *Symplocaceæ*, but after a time become dark-brown. Those of the Malacca plant are quite as yellow as a Symploicos.

1880. Microelus Roeperianus (W. and A., Edn. Phil. Journal, *Stylodiscus trifoliatus*, Bennett, in Horsfield's Java plants, *Andrachne trifoliata*, Roxb. Fl. Ind.)

This is the only species of the genus and has a wide range: Java, Bengal, Circar Mountains, and the Southern Peninsula as far as Courtallum, and I believe it extends considerably to the south of that.

Mr. Bennett, not being aware of our prior name, gave it the one quoted above, accompanied by a full description and some remarks on its affinities. The two generic names merit a passing notice. *Microelus*—a little nail—is in allusion to the rudimentary style of the male flower, the top of which is flattened like the head of a nail. *Stylodiscus* evidently alludes to the same structure, the dilated disk-like head of the male style.

1881. Dalechampsia velutina (R. W.), leaves deeply 3-lobed, cordate at the base, serrated, subglabrous above, venoso-reticulate whitish and velvety beneath, calyx of the female flower persistent, six-lobed, lobes very hairy, dentate on the margin: hairs rigid bristle-like.

Neilgherries ? I am not quite sure in regard to the station. It appears a very distinct species, allied, however, to a Cape species of which I have a specimen under the name of "*D. Capensis*, Spreng."

1882. Dalechampsia Indica (R. W.), leaves 3-foliolate, lateral leaflets gibbous, sometimes lobed externally, all serrated, cuspidato-acuminate, shortly and sparingly pubescent on both sides: female, calyx persistent, 8-lobed in the lateral flowers; 10-lobed in the middle one, lobes serrato-dentate.

Dindigul Hills. These are both rare plants, and, so far as I have seen, the only species of the genus natives of India. Lamark describes another, which he saw in Jussieu's Herbarium, said to have been found in India, but which seems never to have been met with since, and therefore doubtful as regards this being its native country. The rest of the genus, with very few exceptions, is of South American origin.

The genus is a very marked one, being at once distinguished by its two large 3-lobed pale yellow bracts enclosing both the male and female flowers. These, on being reflexed, bring into view a sessile capitulum of male flowers seated in a cup-shaped involucre and 3 females, embraced by two somewhat similar but smaller undivided bracts, each furnished with from 6 to 10 linear dentate sepals beset with stiff bristly hairs and terminating in a long stout style and club-shaped, truncated stigma. As the seed advance to maturity the pedicels elongate, the sepals enlarge and become riged, and surround the 3-celled capsule, much as the involucre of Pavonia does its capsule.

1883. Macaranga Indica (R. W.), diœcious, arboreous: leaves stipuled, peltate: stipules paired, broad ovate, cuspidate: male flowers panicled, glomerate: glomerules bracteate: bracts petioled, glandulose: calyx 3-parted, pubescent: stamens 6–8, monadelphous at the base: anthers flattened, tetradymous: entire or slightly dentate, pubescent and punctuate beneath, glabrous above, female panicles axillary: flowers solitary or paired, pedicelled, bracteate: bracts sometimes pedicelled and glanduliferous as in the male: calyx 4-parted: capsule covered with resinous points.

Neilgherries, Courtallum, flowering during the autumnal months. The margin on the leaf is too distinctly dentate, at least for the average outline of leaves.

When preparing the letter press character, for the subject of this plate (which I have purposely made very full), I was led to examine more carefully than I had hitherto done all the specimens in my herbarium corresponding in their general aspect with the one under consideration, and at the same time to compare the distinctive characters, which I did not previously quite understand, of *Mappa* and *Macaranga*, which I was prevented doing when naming the drawing preparatory to sending it to the Lithographer. The distinction I now find is confined to a single point of the structure of the female flower, and that without it, the two genera are undistinguishable. In *Mappa* the female flower has 2 or 3 styles, and the ovary as many cells: in *Macaranga* it has one style and a one-celled ovary. This solitary distinction is however strengthened by geographical distribution, *Mappa* being confined, so far as yet known, to the Eastern Archipelago while the Asiatic division of *Macaranga* seems equally limited to the Indian Peninsula. Blume, for example, enumerates 5 species of *Mappa* from Java, while I can produce four (including Roxburgh's *Osyris peltata*, No. 817, of this work) of *Macaranga* from the Peninsula. As regards foliage, it may be stated that, judging from Blume's characters, the leaves of *Mappa* have a greater tendency to elongation and to assume an ovate outline than those of *Macaranga*, all of which are orbicular at the base with a rather abrupt acumination at the apex. That shown in the plate, with the exception of the dentation which is too marked, may be taken as the outline of all the rest; which may be thus briefly distinguished.

1. *M. Indica*, flowers 6–8-androus, bracts glandulose. Neilgherries.

2. *M. tomentosa*, flowers 2–3-androus, bracts foliaceous, obovate, cuniate, tomentose. Malabar.

3. *M. Roxburghii*, flowers triandrous, bracts ovate, acute, serrated. Circars.

4. *M. flexuosa*, flowers 3–5-androus, bracts at the forks of the panicles foliaceous, coarsely serrate, at the glomerules glanduliferous. Courtallum.

Of all these it is my intention by and bye to give, in a single plate, analytical figures so as to show their differences by contrast.

Blume's genus *Pachystemon*, as regards the male plant, has so much the habit of this genus that I at first supposed it a monandrous species of one of the two genera.

It however differs not merely in the reduced number, but also in the structure of the stamen, which is tridymous, that is, has a 3- in place of a 4-celled anther, like all the preceding. Like them the number of stamens differ, 1 being the usual number, but two are sometimes present.

1884. Claoxylon digynum (R. W.), diœcious: leaves alternate, ovate lanceolate, acuminate, serrulate, glabrous: male flowers glomerate, spicate: spikes axillary, slender, about the length of the leaves: calyx 3-parted: stamens numerous: females spikes equaling the leaves: flowers sessile: calyx 4-lobed: ovary 2-celled, with two long subulate styles: capsule 2-coccous: cocci sub-globose, pubescent.

Ceylon. I know nothing of this plant beyond what I learn from the specimens, which I gathered many years ago in Ceylon. They are unaccompanied by any notes, or memorandum of the plant, or where they were obtained.

1885. Baliospermum polyandrum (R. W., *Croton polyandrum*, Roxb.), leaves oval, often lobed, toothed, or coarsely and remotely serrated: spikes

axillary, about the length of the petiols, usually 1 or 2 female flowers at the base: stamens numerous, filaments compressed, dilated at the apex: anthers 2-celled: cells transverse: ovary 3-celled: style deeply 3-cleft: stigmas large, paired, spreading: capsule hispid.

Bengal, Scinde, Circar Mountains. The specimens from which the drawing was made were raised in the Horticultural Society's Garden at Madras. I think I have correctly named it. It certainly is not a *Croton*, and the present is the only genus with which it associates.

1886. CLAOXYLON MURICATUM (R. W. *Croton muricatum*, Klein, M.SS.), arboreous diœcious? leaves opposite, oblong lanceolate, serrate, attenuate at both ends, glabrous, sprinkled below with numerous shining, resinous points: spikes axillary, male ones amentiform, longer than the petiols, female sub-racemose, about the length of the leaves, capsule tricoccous, each furnished with two rows of excrescences.

Courtallum, Ceylon, Bombay? Graham; Belgaum, Law. This plant, unless I am confounding two species under one name, seems to have a wide range. In regard to my Bombay specimens I feel some uncertainty, the capsules being larger and not regularly muricated as in the more Southern ones. The appendages on them more resemble the filamentous ones of *Rottlera peltata*, hence my doubt of the identity of that plant with mine. The resinous glands are also found in *C. digynum*. In both, too, the leaves are sometimes nearly entire, though generally in this coarsely serrate.

SARCOCLINIUM (R. W.).

GEN. CHAR. Diœcious: male calyx gamosepalous, bursting irregularly, 3–5-toothed. Corolla 5-petaled, petals imbricating in æstivation, with 5 large alternate globose glands at the base. Stamens 10, in a double series alternate with the petals and glands, attached round the base of a large rudimentary ovary; anthers 2-celled, cuspidate; cells divaricating at the base, dehiscing longitudinally. Female calyx 5-sepaled; sepals ovate, acute. Corolla 5-petaled, petals inserted round the base of a thick fleshy 5-lobed disk. Ovary sessile, the base embraced by the disk, 3-celled, with a pendulous ovule in each; styles 3, spreading; stigmas six, recurved. Capsule 3-coccous, subglobose. Seed.—(The seed were not sufficiently mature though the capsule seems full grown.

Shrubs, with alternate, obovate oblong, somewhat cuniate, short petioled or sub-sessile, glabrous, coriaceous, entire, shining leaves, ending in a short blunt acumen: male racemes glomerate, interrupted: glomerules bracteate, bracts serrated: flowers short pedicelled; petals obovate, somewhat toothed on the margin, stamens longer than the petals: filaments subulate: sterile ovary 2–3-cleft, female racemes axillary: flowers bracteate: bracts ovate, stem-clasping, entire: sepals ovate, acute: petals orbicular, somewhat waved. Disk very thick and fleshy, whence the generic name, Fleshy bed.

1887–88. SARCOCLINIUM LONGIFOLIUM (R. W.).
Alpine forests, exposed to the influence of the South-west monsoon, Western slopes of the Neilgherries not unfrequent, but I have specimens from many other stations.

A rather large shrub, flowering during the cool and rainy season, its seed seem to ripen during the hot season. I have known this plant many years, but only last year got specimens in a sufficiently perfect state to admit of my determining the genus; which, so far as I can make out, is very distinct from any yet published.

GIVOTIA (Griffith).

GEN. CHAR. Male. Calyx 5 sepals, imbricated. Corolla 5 petals, convolute, alternate with 5 large fleshy glands. Stamens about 15, monadelphous at the base, free above; anthers 2-celled, opening longitudinally. Female calyx and corolla as in the male, stamens none. Base of the ovary embraced by a fleshy 5-lobed ring. Ovary cells 1-ovuled. Styles 2–3-celled; 2–3, two-cleft, stigmatose within, fruit drupaceous, one-seeded.

A small ramous tree, leaves alternate, cordate or somewhat lobed, clothed with white stellate pubescence beneath, sub-glabrous above; petiols often furnished with one or two prominent glands. Panicles terminal, flowers congested or sub-capitate on the ends of the ramuli, pedicels jointed, usually furnished with a filiform bract. Stamens hairy at the base. Fruit oblong, about the size of a pigeon's egg, nut very hard, seed oily.

1889. GIVOTIA ROTTLERIFORMIS (Griffith).
A common tree in sub-alpine forests all along the base of the central range of Ghauts, and to be met with in flower at nearly all seasons, but principally during the Spring and Summer months. The normal number of stamens is I think 15, but I have found 13, and the draftsman has represented 10, which I feel sure is a mistake.

When Mr. Griffith established the genus he had only seen female flowers, hence his character was deficient in what regards the male; that I have here supplied from native specimens.

The wood is very porous and considered of little value, but I have heard that the oil obtained from the seed is considered superior to either Olive or Almond oil for fine machinery.

1890. TRIGONOSTEMON HETERANTHUM (R. W.), lobes of the calyx of the male flower entire on the margin, of the female glanduloso-dentate: leaves quite entire: racemes axillary, paniculate.
Mergui, Griffith.

This species differs from Blume's *T. serratum*, the only other described species, in both the inflorescence and flowers, the calyx of the female differing so widely from that of the male.

PELTANDRA (R. W.).

GEN. CHAR. Monœcious, male calyx 5-parted, corolla none. A large glandular disk lining the bottom of the calyx and embracing the base of the stamens. Stamens 5, monadelphous below, free and spreading above, equal; anthers 2-celled, opening longitudinally, no rudimentary ovary. Female. Calyx of the male, no corolla or rudimentary stamens: base of the ovary embraced by a fleshy cup-like disk. Ovary 3-celled with 2 pendulous ovules in each cell, styles 3, deeply 2-parted. Capsule 3-celled with 2 or, by abortion, 1 corrugated seed in each. Testa rough; albumen copious, embryo inverse, cotyledons foliaceous

with a longish radicle pointing to the hilum. Suffruticose plants: leaves alternate, short petioled, ovate. Male flowers axillary, sub-amentaceous, longish pedicelled: ament or short raceme covered with ovate, ciliate, imbricating, membranous bracts. Female flowers solitary, long pedicelled, usually seated at the base of the male amentiform racemes.

1891. Peltandra longipes (R. W.), erect, ramous: leaves short petioled, ovate, acuminate, slightly dentate: female peduncles much longer than the leaves, filiform: filaments united nearly to the apex.

Quilon, Malabar.

The specimen represented is much smaller than some others in my collection, but is on that account better adapted for the size of my plate.

1892. Peltandra parvifolia (R. W.), stems erect, angular, ramous: leaves broad ovate, mucronate, entire: pedicels of the female flowers about the length of, or a little longer than the leaves: filaments united about half their length.

Malabar? I am uncertain in regard to the station which is not marked, but I think Malabar. Though, as shown by the figure, so unlike the other, yet when the specimens are placed side by side they present a very evident family likeness.

1893. Agyneia bacciformis (Juss. fil., *Phyllanthus bacciformis*, Lin., Roxb.) biennial, diffuse, herbaceous: stems triangular: leaves somewhat succulent, stipules forked: male flowers several in the lower axils: female usually solitary towards the ends of the ramuli: filaments 3, united to the apex: styles spreading: stigmas 2-lobed, reflexed.

This is a common and variable plant, common in grassy pasture near the coast, and is in flower all the year. The plant represented is a small one, as it is occasionally to be met with nearly two feet long, lying flat on the ground.

1894. Phyllanthus Niruri (Linn.), annual, erect, ramous: branches herbaceous, ascending: floriferous branchlets (pinnate leaves of old authors) filiform: leaves elliptic, mucronate, entire, glabrous: flowers axillary; male flowers minute, two or three with one longer pedicelled female in each axil, terminating in three transverse anthers: capsule globose, glabrous, 3-angled with 2 seed in each sell: seed triangular, albumen very abundant embryo axile.

A common weed everywhere, and, where it has moisture enough to grow, always in flower.

The male flowers are minute and might easily be overlooked beside the female ones which are more conspicuous, hanging in rows below the leaves. In the evening or in dark cloudy weather the leaves close like those of the sensitive plant.

This, like several other species of the genus, bears the leaves and flowers on a series of ramuli, different from the others, so much resembling pinnate leaves that they were for a long time considered such, the authors not adverting to the circumstance that leaves never bear flowers, and that their presence at once shows that the rachis on which they are borne is a branch, not the midrib of a compound leaf. In the above and following characters I have called them floriferous branchlets or ramuli, in contradistinction to the proper branches of the plant.

It was an error of Linnæus to call this plant *Niruri*, seeing it is the *Kirganeli* of the Hortus Malabaricus, and an even worse one, on the part of Willdenow, to call another plant, not even a native of India, *Kirganelia.*

1895–1. Phyllanthus Rheedii (R. W., *Niruri*, Hort. Mal. 2. tab. 27.), shrubby, leaves oval obtuse, mucronate: stipules subulate: flowers axillary; males two or three, female, when present, solitary, larger and longer pedicelled than the male: filaments united, 3-anthered at the apex, capsule globose.

Malabar. This species, if known, seems to have been either confounded with others resembling it in general appearance, or has been passed over as an unknown plant. Roxburgh (Fl. Ind.) quotes Rheede's figure (2 tab. 27) for *P. multiflorus*, and in Dillwyn's valuable review of the references to that work it is quoted for an unpublished species of Roxburgh's "*P. scandens*" (probably *P. multiflorus* of his flora which he characterizes as climbing); but whatever that plant may be, it is not, under that name, admitted into the Flora Indica. After much consideration I propose to quote this plate as a Synonyme for my plant, and 5 tab. 44 for Roxburgh's *P. multiflorus*, *Anisonema multiflora* of a subsequent plate (No. 1899). This is certainly a Phyllanthus, which is not the case of either *P. rhamnoides*, or *P. multiflorus*.

1895–2. Phyllanthus polyphyllus (Willd.), floriferous branchlets many-leaved: leaves linear, obtuse, mucronate, small: flowers axillary, solitary: female ones above: stems shrubby or sub-arboreous: floriferous rachis somewhat compressed: stamens monadelphous: anthers vertical, cohering: crowned with the prolonged connective.

Sub-alpine jungles. Common towards the foot of the Eastern slopes of the Neilgherries. A large shrub or small tree, so very like *Emblica officinalis* in its general appearance and habit, that I for a long time thought it that tree. A single glance however at the fruit is enough to show the difference.

1895–3. Phyllanthus Madrapatensis (Lin), leaves alternate, narrow cuniate: stipulary scales scariose, peltate, flowers axillary, 3–5 males and one female: stamens monadelphous, connective prolonged beyond the anthers, capsule glabrous.

This is a very common plant, but the form represented is rather rare. The leaves in the more usual form are much broader at the apex, more cuniate, and often somewhat retuse at the point; but notwithstanding these differences I believe this to be simply a narrow-leaved variety of that plant.

1895–4. Phyllanthus leprocarpus (R. W.), herbaceous, erect: floriferous branchlets spreading, many-leaved: leaves elliptic oblong, obtuse, ciliate: stipulary scales scariose, peltate, cordate at the base, acuminate: anthers crowned with the prolonged connective, capsule globose, scaly, rough.

I have named this species, which greatly resembles in its general appearance luxuriant plants of *P. Niruri*, in allusion to its rough scaly capsules, which of itself I find sufficient to distinguish it from all those in my collection. I suspect that when this genus comes to be carefully revised, the elements of two genera will be found among the 5 species represented in these two plates.

G

1896. Emblica officinalis (Gærtner), arboreous, ramous: floriferous branchlets many-leaved: leaves linear oblong, obtuse at both ends: flowers axillary, aggregate, small, yellowish.

This tree is frequently met with in gardens, the fruit being used by the Natives for pickling, and as a condiment. I have met with what appears to me another species, but as my specimens are not in fruit I feel uncertain on that point. The genus is easily distinguished from *Phyllanthus* by the cup-like lobed disk which covers the ovary. The anthers, too, are slightly different from those of most of the the Phyllanthi in having a broader connective, separating the 2 cells to such a distance as to give each the appearance of 2 cohering. This structure and the elongation of the connective, mentioned in some of the preceding species, are well shown at fig. 2 of this plate.

1897. Melanthesa turbinata (R. W., *M. truncata*, R. W. in Icon., *Phyllanthus turbinatus*, Roxb., Konig.), shrubby or arboreous: floriferous branchlets bifarious: leaves oval, obtuse, entire, sometimes slightly unequal-sided: flowers axillary, frequently male and female in the same axil: male flower turbinate (top-shaped), six-lobed; lobes inflexed, nearly closing the orifice: stamens united, anthers adhering by their backs to the columnar filament: female calyx deeply 6-lobed, enlarging with the fruit: fruit before maturity baccate, when quite ripe, dry and capsular, 3-valved. Seed 3, angular, arilled at the base.

Neilgherries, Malabar, &c. This plant, Roxburgh informs us, attains the size of a large tree among the mountains of Orissa. It is very common a little below Coonoor, on the Neilgherries, but there I have never seen it larger than a moderate sized shrub: can it be that I am confounding 2 species under one name? Roxb. quotes the Hort. Mal. 5, tab. 3, for his plant; I feel certain that that plate represents my plant even better than my own, and therefore unhesitatingly adopt Roxburgh's name.

By a mistake, when writing the name on the drawing, I wrote "truncata" in place of "turbinata." Fig. 12 of the plate represents the aril, but too large in proportion to the seed—at least when the seed has attained perfect maturity, which the one represented had not.

1898. Melanthesa rhamnoides (Blume, *Phylanth. rhamnoides*, Retz., Willd? P. *vitis idœa*, Roxb.) leaves oval, rounded at the apex, acute at the base, glabrous: peduncles axillary, the inferior ones paired, male; upper ones solitary, female, about the length of the petiol: fruit embraced by the short calyx (Blume): berries globose, bright red, mealy when ripe.

A common plant near the Coast.

The bright-red fruit, when abundant, gives the shrub a rather lively and attractive appearance. I attach little or no value to characters taken from the relative position of the male and female flowers on the floriferous branchlets, as I find them about as often wrong as right. The best characters I know for this plant are, the prominent connective of the anthers, the large ovary, in comparison with the small calyx, and the red berries, not one of which Blume admits into his character, and therefore leaves room for doubting whether the Indian plant be indeed the same as the Java one, whence he takes his character. Willdenow quotes Burm. Zel. tab. 88, for this plant, which is a mistake, as it clearly belongs to his *P. multiflorus*.

1898. Melanthesa obliqua (R. W.), leaves oblong, obtuse, unequal-sided, blunt, flowers axillary, several together: male calyx turbinate, lobes inflexed: filaments united; anthers adnate: female calyx six-lobed, enlarging with the fruit: stigmas 2-parted, reflexed.

This is perhaps too nearly allied to *M. turbinata*, but differs in the form of the leaves and in the male flowers, which seem scarcely half the size. They both appertain to Blume's 2d section, "stigmata semibifida," along with his *M. Chinensis*.

The genus *Melanthesa* is at once recognised, 1st, by the form of its male flowers which are top-shaped, forming a sort of cone, the marginal lobes of which are abruptly turned in over the opening and rest on the apex of the stamenoid column—and 2dly, by the ovary which is truncated or even concave on the apex, with the stigmas appressed to the surface.

1899. Anisonema multiflora (R. W., *Phyll. multiflorus*, Willd., Roxb., *Katon Niruri*, Hort. Mal. 5 tab. 44., *Rhamnus Zeylanica*, &c., Burm., Zeyl. tab. 88.), shrubby, primary branches virgate, young shoots pubescent: floriferous ramuli angular: leaves nearly oval, obtuse, bifarious: flowers axillary, aggregated, several males and usually 1 female: male flowers purplish; berries 8–12-seeded, dark purple or black, soft and pulpy.—Sweetish tasted.

This is a common shrub near water, and when it has the support of bushes often climbs to a great height, hence the probability of this being Roxburgh's *P. scandens*.

This plant clearly belongs to A. de Jussieu's genus *Anisonema*, and I think there can be no doubt of this being *P. multiflorus* of Roxb. and Willdenow. My figure, to my eye, seems scarcely so characteristic of the features, if I may so say, of the plant as Burman's in the Th. Zeylanicus.

Ceratogynum (R. W.).

Gen. Char. Monœcious. Perianth six-parted, lined within with a broad six-lobed disk, lobes free on the margin. Corolla and glands none. Stamens 3, filaments united below into a column, free and spreading above, anthers 2-celled: covered in æstivation by the free margins of the lobes of the disk: cells collateral. Female perianth six-parted in a double series. Corolla and glands none. Ovary truncated, 3-angular, 3-sided, 3-celled with 2 pendulous ovules in each. Styles 6, slightly adhering by pairs, springing from the outer angles, not the centre, of the ovary ("Styles from the horn of the germ and not from the centre, each 2-cleft," Roxb.). Capsule globose, 3-celled, 6-seeded. Suffruticose plants: floriferous branchlets alternate, spreading: leaves ovate: flowers axillary, male and female mixed; at first two or three from each, afterwards becoming racemose in the lower axils.

1900. Ceratogynum rhamnoides (R. W., *Ph. rhamnoides*, Roxb. not Willd.).

No station is given, the drawing of the plant and figs. 1, 2 of the analysis were taken from recent spe-

cimens, the rest from dried ones. Roxburgh calls it "a small shrub a native of cultivated land, among other shrubs on the coast of Coromandel."

This plant seems so very distinct in its characters from *Phyllanthus* that I almost wonder at Roxburgh's passing it as such, and can only account for it on the supposition of his believing it Willdenow's *P. rhamnoides*, Roxburgh's *P. vitis idæa.*

Since writing the above I have seen recent specimens of a new species but not in good state. They have however enabled me to verify the view taken in the character of Roxburgh's nectaries, which he describes as being "six scales on the middle of the leaflets of the calyx, pointing inwards, before the flower expands, these cover the anthers like so many hoods," but which are simply the free margins of the large disk which lines the bottom of the calyx.

Macræa (R. W.).

Gen. Char. Monœcious. Male, perianth 6-parted, forming a double series. Corolla none. Six glands, alternate with the sepals. Stamens 3, free to the base; anthers extrorse, opening longitudinally. Female. Calyx as in the male. No corolla or glands. Base of the ovary bound by an annular disk. Ovary 3-celled 6-ovuled; styles 3, deeply 2-cleft; stigmas reflexed. Capsule 3-celled, six-seeded. Suffruticose, straggling plants, often, when supported, two or three feet long: leaves alternate, stipulate, stipules membranous, peltate: flowers axillary, several aggregated in each axil; usually 1 female and 3 or 4 males.

This genus is perhaps scarcely sufficiently distinct from *Phyllanthus*, the principal difference being the free stamens of this, as opposed to the united ones of the other.

The genus *Macræa* of Lindley, an orchid, being reduced, I have dedicated this genus to that active Botanist. It is the more appropriate as several of the species are natives of Ceylon, the principal field of his labours.

1901. Macræa Rheedii (R. W., *Niruri*, Hort. Mal. 10, 27.) Suffruticose, decumbent, straggling, glabrous: leaves sub-sessile, oval, obtuse at both ends: stipules peltate, orbicular below, ending in a longish tapering acumen: male flowers short pedicelled: female pedicels about the length of the leaves, ovary rough.

Pulney Mountains, September and October.

I look upon this plant as being undoubtedly Rheede's *Niruri*, vol. 10, tab. 27. That plate has been quoted by mistake, perhaps indeed a mere typographical error, by Roxburgh for his *Ph. multiflorus.* The plant here represented is somewhat more compact than Rheede's, but I have other specimens loose enough to bear comparison with his plate.

1902–1. Macræa oblongifolia (R. W.), suffruticose, diffuse, ramous: branches ascending: leaves linear oblong, obtuse at both ends, mucronate: stipulary scales broad ovate, acuminate, peltate: male flowers short pedicelled, female pedicels equaling the leaves.

Station uncertain, but I think the Pulney Mountains. The leaves in the figure are a little too broad in proportion to their length. They diminish progressively towards the apex, giving the whole branch a tapering aspect.

1902–2. Macræa myrtifolia (R. W., *Ph. myrtifolius*, Moon's Cat.), shrubby, erect, ramous branches slender: leaves single or two or three, fascicled, oblong lanceolate, acute, mucronate: stipulary scales cordato-ovate, slightly fringed: flowers fascicled, axillary, pedicelled, shorter than the leaves: glands of the calyx globose, rough.—Leaves about an inch long and from 1 to 2 lines broad.

Ceylon.

1902–3. Macræa Gardneriana (R. W.), suffruticose, diffuse: leaves sessile, ovate, obtuse at both ends, revolute on the margin, pale glaucous beneath: stipulary scales deeply sinuato-cordate, ovate, acuminate, sub-dentate on the margin: filaments clavate: cells of the anthers diverging from the point: glands small, smooth.—The leaves are sometimes nearly round and occasionally, but rarely, at least in the dried specimen, scarcely revolute on the edge.

Ceylon, Neuera Ellia, Gardner.

1892–4. Macræa ovalifolia (R. W.), suffruticose, ramous; branches long, slender, diffuse: leaves sub-sessile, oval, obtuse at both ends, paler beneath: stipulary scales irregularly-angular, peltate, acuminate at both ends: calycine glands large, globose: anthers' cells slightly divaricated below.—Larger leaves about an inch long and 4 lines broad: flowers fascicled, male and female mixed.

Eastern slopes of the Neilgherries, abundant, ascending to the elevation of about 6000 feet, very diffuse, branches often from 2 to 3 feet long. This species seems very nearly allied to the preceding, but is, I think, distinct.

Reidia (R. W.).

Gen. Char. Monœcious. Male. Calyx 4-sepaled, equal, imbricating in æstivation. Corolla none, 4 large glands alternate with the sepals. Stamens 2, filaments united below into a column two-lobed at the apex; each bearing a large 2-celled anther; cells widely divaricate, nearly horizontal (resembling 4 anthers), dehiscing transversely to the axis of the flower. Female. Calyx six sepals in two rows, persistent. Corolla none. Disk annular, fleshy, six-lobed, embracing the base of the ovary. Ovary 3-celled with 2 pendulous ovules in each; styles three, deeply 2-parted; divisions subulate, stigmatose. Capsule 3-celled: cells 2 or, by abortion, 1-seeded. Seed obovate, 3-angular.

Shrubs, branches ascending: floriferous branchlets slender, spreading: leaves alternate: stipules minute, flowers axillary, male and female fascicled: females usually solitary, long pedicelled with several smaller short pedicelled males.

This genus is dedicated to Lieut. Colonel Francis A. Reid, the talented Secretary to the Madras Horticultural Society, and indefatigable director of its garden. Under his guidance a very general taste for Botanical pursuits has been established, leading to the rapid advancement of Indian Botany, by the introduction into cultivation of numerous hitherto imperfectly known Indian plants. Within the last few years the Society's garden, under his superintendence, has become a well-stocked Botanic garden.

To this genus belongs Roxburgh's *Phyllanthus tetrandrus*, and doubtless had Willdenow introduced descriptions of the flower into his characters, some of his species would also be found referable here.

1903. Reidia floribunda (R. W.), shrubby, ramous, branches virgate: floriferous ramuli spreading, many-leaved, and with the leaves pubescent: leaves ovato-elliptic, blunt, slightly unequal-sided, nearly glabrous above, pubescent and pale reddish beneath: flowers axillary, numerous, fascicled, several short pedicelled, males and one long pedicelled, reddish-purple, female in each axil, flowers pubescent: capsules globose, drooping, glabrous.

Neilgherries, on the Eastern slopes, about 2 miles below Coonoor, but rather rare. I have this plant from other localities, Pulney Mountains, &c. The artist has not been successful in conveying a good idea of the plant which is a very handsome one, but difficult to represent. The figure No. 4 represents the stamens with the anthers artificially separated to show the structure of that part of the flower, that is, to show that the apparent 4 anthers, as described by Roxburgh, in his *Phyll. tetrandrus*, are in truth only two with the cells placed end to end, lying horizontally across the flower.

1904–1. Reidia fimbriata (R. W.), shrubby, leaves broad ovate, acuminate, glabrous: flowers fascicled, axillary, male sepals broad ovate, membranous and fringed on the margin: female sepals like the male, the 3 interior ones fringed.

Western slopes, Neilgherries.

1904–2. Reidia latifolia (R. W.), shrubby, floriferous branchlets congested on the ends of the primary branches, many-leaved: leaves ovate, acute, unequal-sided, glabrous: flowers numerous, axillary: females solitary in the lower axils, often wanting in the upper ones: sepals ovate, quite entire on the margin; capsule about the size of a small pea, glabrous.

Courtallum, flowering during the autumnal months.

This species is also a native of Ceylon. The specimen selected is, for want of room, a small one, not much in accordance with the name. The floriferous branchlets are often more than a foot long.

[*N. B. The numbers on the plate have been transposed by the Lithographer. This figure is marked III in the plate, and the following* "2;" *these numbers require to be reversed.*]

1904–3. Reidia ovalifolia (R. W.), a very ramous shrub: floriferous branchlets congested on the ends of the branches, leaves numerous, close-set, oval obtuse, unequal-sided (fig. 8.), glabrous above, pale glaucous beneath: flowers numerous, axillary: male sepals somewhat obovate, quite entire, glabrous: female like the male: styles 2-cleft, stigmas reflexed.

Courtallum. In this the female flowers are more numerous on the ends of the ramuli, and the styles are different from those of the preceding species. The leaves are represented too small for the average size. Fig. 8 is about the natural size of full-grown leaves.

1904–4. Reidia polyphilla (R. W.), shrubby, ramous: floriferous branchlets congested on the ends of the branches: leaves small, close-set, ovato-lanceolate, acute, slightly unequal-sided, glabrous: flowers axillary, aggregated: 2 interior sepals of the male and three of the female, membranous and fringed on the margin.

Ceylon, Thwaites. I only know this species by a single specimen communicated by Mr. Thwaites. It approaches *R. fimbriata* in the flowers, but is in all other respects widely different. In addition to the above, there are still two or three species in my collection.

Glochisandra (R. W.).

Gen. Char. Monœcious. Male flowers six-parted. Corolla and glands none. Stamens six, free to near the base, connivant round the rudimentary ovary; connective strap-like, prolonged beyond the anthers, sub-lanceolate; anthers 2-celled, adnate their whole length. Pistil rudimentary, 3-lobed, concealed by the connivant anthers. Female calyx as in the male. No corolla nor disk. Ovary free, six-celled with 2 ovules in each; style short, thick and fleshy, slightly six-lobed at the point; channeled in the centre.

Arboreous, ramuli somewhat flexuose, lax: leaves alternate, oblong, elliptic, acuminate, entire, glabrous: flowers fascicled in the axils; males numerous, pedicelled; females few, sub-sessile.

1905. Glochisandra acuminata (R. W.).

I am only acquainted with this tree through the medium of a specimen received from the Calcutta Bot. Garden, labeled "*Briedelia spinosa*," evidently a mistake, as it has no resemblance to that plant, but has much the aspect of a *Glochidion*. This differs from that genus in the male flowers being distinctly hexandrous, with stamens free, not connate into a central column, and in having a well-developed rudimentary pistil: but at the same time, though thus amply technically distinct, it has so much the habit of *Glochidion* that I think, in the event of a revision of that genus, the character might be so far enlarged as to admit both this plant and the genus *Gynoon*, both of which I certainly think are true congeners though technically distinct. This I shall endeavour to show in the following remarks on these two genera.

Glochidion, (Forst., Gynoon, Aâr. de Jussieu.)

These two, as hinted above, are so near each other, as to be in fact indistinguishable by the characters of either Endlicher or Meisner. For this confusion I fear Dr. Arnott and myself are principally to blame, as we, in giving an amended character of *Gynoon* to admit what we considered a new species, broke it down, our supposed new one being a species of *Glochidion*. The genus *Gynoon*, as it came from the hands of Jussieu, had monœcious flowers, the male having a 5-parted calyx, 3 filaments united at the base, distinct at the apex and 3 extrorse anthers adnate below the apex of the filaments. Female calyx 6-parted, 3 stigmas, convex outside, angled within, connate into an ovoid mass double the size of the ovary. Ovary globose, 3-celled; cells 2-ovuled. In all these particulars our plant more or less agreed, except that we gave it 6-stamens and a 6-celled ovary. The apparent difference in the number of stamens is easily reconciled, both plants are triandrous with the cells of the anthers so distinct and prominent that they each re-

semble a perfect anther. Jussieu describes them as 3 stamens with 2-celled anthers; ours, I now find, were precisely the same. The discrepancy between the number of cells in the ovary in the two plants, however, remains irreconcilable, the one has 3- the other 6-celled ovaries, and until we consent to unite *Glochidion* and *Gynoon* as a genus, having 3–6-celled ovaries, our plants must respectively take their places in different genera. In plate 1908 is represented a plant I have from Ceylon, and which I strongly suspect is Jussieu's original species, but which, whether that identical species or not, is unquestionably a species of *Gynoon*, and in the right hand corner is an analysis of the flower of our *Gynoon Heyneanum*. A comparison of the former with Jussieu's character will show that it is a *Gynoon*, and of the latter, with the character of *Glochidion*, will equally show that it belongs to that genus, with the exception of the ovary being 5- in place of 6-celled, a structure which I find variable, both forms occurring on the same branch. It follows that the only difference between the two genera, as will be seen by the accompanying plates, is that the one has a 3- the other a 5- or 6-celled ovary; a very artificial distinction, and one indeed set a side in Blume's character of the genus *Glochidion*, in which he says, "Stigmata 3-12, ovarium 3-6 rarius 12 loculare." On these grounds I would suggest that the 2 genera should be united and merely distinguished sectionally. The preceding, though so widely distinct in the male flower, might also perhaps be brought here with advantage.

1906. Glochidion ellipticum (R. W.), shrubby: leaves elliptic oblong, glabrous, short petioled: flowers axillary, aggregate, male and female: male pedicelled, female sessile, male perianth six-parted in a double series: lobes ovate obtuse: female pubescent; perianth 6-cleft, embracing the base of the ovary: styles united, conical, ovary 4–6-celled: capsule orbicular, depressed in the centre, cells 1-seeded (?) by abortion.

Malabar. The drawing and section of the fruit with the male flower and divided stamens in the left corner of the plate were made many years ago when I was in England; the other dissections were made from flowers picked off the specimens preserved with the drawing. It is on the authority of the drawing that I describe the cells of the fruit as one-seeded. The specimen does not enable me to verify that point of structure but I fancy that in this as in other species both one and two are found in different fruit.

1907–1. Glochidion arborium (R. W.), arboreous: ramuli pubescent: leaves ovate, acuminate, unequal-sided, glabrous: flowers aggregated, male and female mixed; males short pedicelled; female sessile: male perianth deeply six-parted, lobes somewhat obovate: female connate, 5–6-toothed, much shorter than the long fleshy 5–6-toothed style: ovary 5–6-celled with 2 ovules in each: fruit capsular, 2–3-celled, crowned, until near maturity, with the persistent style.

Shevagherry Hills. Neilgherries?

When recently re-arranging my series of specimens, of which I have a considerable number, I discovered that I had mixed specimens of two species under this name, and suspect that this is not the one for which the specific name was intended. As, however, it also is, I believe, still an undescribed species, I shall, to prevent further mistakes, introduce it here under the name of

Glochidion Neilgherrense (R. W.), arboreous, ramuli glabrous, flexuose: leaves oblong, sub-elliptic, obtuse, or sometimes shortly acuminate, slightly unequal-sided, coriaceous, glabrous: male flowers short pedicelled: females sessile: style very thick, truncated, mammilately toothed, scarcely longer than the perianth: fruit broad orbicular, 5–6-celled, depressed; crowned in the centre with the short persistent style.

A low-growing umbrageous tree, common about Ootacamund. The dried specimens are very like those of *G. Heyneanum*, but are at once distinguished by the female flower, which I find supplies the best specific characters.

1907–2. Glochidion velutinum (R. W.), shrubby, young branches, leaves, and flowers, all clothed with short velutinous pubescence: leaves short petioled, oval, acute at both ends: flowers aggregated, male and female mixed, all pedicelled; perianth six-parted; lobes of the male ovato-lanceolate, of the female somewhat obovate lanceolate, obtuse: style fleshy, truncated, obsoletely 5–6-toothed: ovary 4–6-celled: capsule orbicular, depressed, crowned with the persistent style.

Neilgherries, Northern slopes towards Mysore. A very distinct and easily recognised species.

1908. Gynoon Jussieuanum (R. W., *G. triandrum?* W. & A.), shrubby, glabrous: leaves ovate, acute, unequal-sided: flowers axillary, fascicled, male and female: lobes of the perianth lanceolate, in the female shorter than the ovoid truncated style.

When naming the drawing I did not advert to the circumstance that, supposing this to be really Jussieu's plant, which is doubtful, we named it "triandrum," under a misapprehension, and that the name is inappropriate in a genus all the species of which are triandrous. I now therefore beg to be permitted to change the name, and substitute that of the founder of the genus, and request the specific name of the plate may be changed to "*Jussieuanum*." Though my figure of the style does not quite correspond with that of the author, I suspect the difference depends mainly on the difference of age, mine being more advanced. Of five species now in my herbarium, all from Ceylon, this is the only one that approaches his figure, the style in all the rest being long and attenuated, more resembling that represented in the next plate.

The figures in the right hand corner of this plate are taken from our *G. Heyneanum* with a view to showing that it is a species of *Glochidion*, as indicated by the number of cells of the ovary.

1909. Gynoon hirsutum (R. W.), shrubby, whole plant clothed with long soft pubescence: leaves elliptic, acuminate: male, perianth six-parted much longer than the stamens, lobes lanceolate: female like the male, style about twice the length of the calyx, slender, 3-toothed at the apex.

Adam's Peak, Ceylon, Gardner, communicated by Mr. Thwaites.

1910. Actephila Neilgherrensis (R. W.), flowers pentandrous: calyx 5-parted: petals five.

H

In dense woods on the top of the high hill east of Coonoor, Neilgherries, flowering April and May.

Blume, the founder of this genus, defines it "monœcious, calyx deeply six-parted; lobes in 2 series, petals alternate, shorter than the calyx; inserted, in the male, round an emarginate stameniferous disk. Male, stamens six, subulate; cells of the anthers roundish, extrorse; 3 rudimentary styles in the centre. Female, ovary 3-celled, cells 2-ovuled; styles three, short, divaricated. Fruit capsular, 3-coccous, with 1–2-seed in each. A shrub about 15 feet high with alternate, 2-stipulate, elliptic, oblong, entire, coriaceous, glabrous, veined, leaves. Flowers axillary, glomerate, bracteate; males sub-sessile; females longish peduncled.

In all these particulars my plant, with the exception of the number of parts of the flower, accurately agrees—5 in mine 6 in his—and as the number may vary, I see no reason, on that account, for forming a separate genus for mine.

There is however one very important point in mine, to which he does not advert and which merits particular notice as it may yet lead to their separation; I allude to the structure of the seed. In mine they are exalbuminous! If in the Java plant they are albuminous, then that character, added to the difference in the number of the parts of the flower, will claim for the Indian plant a separate generic name. And on the supposition that so accurate an observer as Blume could scarcely have overlooked a circumstance, so rare, in the order, I had in the first instance constructed a generic character for this plant, under the name of *Sarcospernum*,—in allusion to the structure of the seed—from which I quote the following sentences, "capsule 3-seeded by abortion, seed large, fleshy, exalbuminous: cotyledons unequal, the larger exterior one nearly inclosing, and in great part concealing, the interior smaller one." The figures 11, 12, 13, and 14 imperfectly represent this formation. With these notes I leave the future disposal of this plant for the decision of observers who may have an opportunity of examining the Java plant.

1911. Amanoa Indica (R. W.), anthers innate. Courtallum, in alpine jungle.

Shrubby or sub-arboreous, ramous: leaves alternate, oblong elliptic, entire, acuminate, coriaceous, glabrous. Flowers axillary, glomerate, male and female mixed, bracteate: bracts ciliate. Male: calyx 5-parted, lobes ovate with 5-alternate glands adhering to the margin of a glandular disk: stamens 5, inserted round the base of a rudimentary 3-lobed pistil, anthers innate, cells divaricating at the base. Female: calyx, glands, and disk as in the male; no rudimentary stamens: ovary nearly concealed within the connivant disk, very hairy, 3-celled, with 2-ovules in each: styles 3, deeply cleft; lobes stigmatose: capsule 3-celled, 3-furrowed, obsoletely 3-angled: cells 1-seeded by abortion, seed ——. In my specimens none of the seed are sufficiently advanced for dissection.

Of this genus, up to the present time, only one species has been published, viz. *A. Guianensis*, but A. de Jussieu states that he saw 2 others from the same country. The Indian plant differs from his generic character in regard to the stamens, in his the anthers are *adnate* to the dilated apex of the filament, and extrorse; in mine they are *innate* (attached to the point of the filament). In all other points my plant agrees so well with his character as leaves me no room for hesitation in placing it in that genus. My herbarium possesses a second species from Ceylon. The two affording new links connecting these distant floras.

1912–13. Pierardea macrostachys (W. and A.), Males; spikes fascicled on the naked branches: flowers ternate, short pedicelled; perianth 4–5-parted, lobes linear, pubescent on both sides: stamens 8–10, inserted round the base of a 2- or 3-lobed rudimentary pistil: female; racemes fascicled as in the male, much longer: flowers solitary in the axil of each minute bract: perianth 5-parted, pubescent: ovary hairy, truncate at the apex, 3-celled: cells 2-ovuled: fruit pulpy, baccate, red when ripe, about the size of a large strawberry, 3-celled, 3-seeded: seed compressed, covered with fibrous membrane: no aril: embryo thin, enclosed in copious albumen: cotyledons foliaceous, orbicular: radicle short, superior.

Mountain forests, Malabar, Anamallay forests. Western slopes of the Neilgherries below Sisparah?

In the above extended, descriptive character, I have felt myself under the necessity of avoiding reference to the leaves, from finding a marked discrepancy between those given on the two plates which I had not observed when preparing them. The leaves shown in 1912 are unquestionably those of a *Pierardia*, but I now find they appertain to what appears a different species from the flowers: while those of 1913, though forming part of the specimen, are yet detached from the flowers. They differ from the other in being opposite, hence a suspicion arises that they do not belong to the tree or indeed to the same genus. If on further investigation it turns out that they really do belong to it, the two species may be defined, as regards each other, in two words, the one, "leaves opposite," the other, "leaves alternate." This difficulty cannot at the present moment be cleared up, but in the mean time it seems to me they are distinguishable by the flowers alone, in the one, *P. macrostachys*, the segments of the calyx are linear lanceolate, in the other sub-orbicular; there are besides points of habit easily appreciable to the eye but not easily defined in words.

At one time I thought I could define them by the relative number of stamens and lobes of the calyx, the numbers being equal in the one, 2 to 1 in the other. This I soon found inapplicable in practice, from finding in both great irregularities. The figures in this species give examples of two flowers showing respectively 4–5 sepals and 8–10 stamens; two or three other variations might have been introduced, such as stamens and sepals equal, stamens, 5–6–7, &c. with 4–5, sepals no uniformity of numbers. The other is similarly irregular, so that so far as I have been able to advance it would appear that positive characters are not readily obtainable from the relative numbers of these two parts, though I certainly think that they may be employed if some latitude were allowed.

P. macrostachys, lobes of the perianth linear lanceolate, acute, hairy: stamens usually twice as many: rudimentary pistil 2–3-lobed.

P. Courtallensis, lobes of the perianth 4–6, sub-orbicular, blunt, covered with very short rigid hairs: stamens about equal in number when five or six-lobed: oftener double when four lobed: rudimentary pistil discoid: leaves alternate, samewhat obovate, cuniate, ending in a short blunt acumen, entire, glab-

rous.—The leaves represented in plate 1912 belong to this species.

One species of Pierardia (I am uncertain which) is, when in full flower, a curious looking tree. One that I saw on the Sisparah Ghaut had the whole trunk of the tree covered with horizontal flower-spikes nearly as close-set as the hairs in a bottle brush; certainly to the full as close-set as those of 1912, but much shorter. I was prevented taking specimens and never, therefore, ascertained the species, though I fancy it must have been *macrostachys*. The fruit described was sent from the Anamally forests, but still without leaves.

* *—P. S.

1914. TIGLIUM KLOTCHEANUM (R. W.), shrubby, stellato-pubescent: leaves shortish petioled, ovato-lanceolate, acuminate, acutely glanduloso-serrate, coriaceous, with 2 depressed peltate glands at the base of the limb.

Travancore, Malabar.

This species, though so nearly approaching the *Croton Tiglium* or *Tig. officinale*, in its written character, seems to the eye very distinct. The whole appearance of the two plants differs, and yet I can find no satisfactory characters by which to distinguish them, hence I fear they will ultimately prove only varieties, unless the fruit prove such as to keep them distinct. I may however remark, in passing, that, though I have found the glandular disk very distinct in this species, I have not found it equally so in what I have always considered the true *Croton Tiglium*, that represented in the Hort. Mal. 2–33, which I now apprehend will be found specifically different from Burm. Zeylan., tab. 90, which has more the appearance of this plant and seems to be the one described by Dr. Klotch.

1915. CROTON LACCIFERUM (Linn., *Croton aromaticum*, Willd., Spreng., *Aleurites lacciferum*, Willd., *Rottlera dicocca*, Roxb.? Rheede Hort. Mal. 5 tab. 23? Burm. Zeyl. 91. Rumph. 3–127, usually quoted for this, is not, I think, a Croton, and certainly does not represent this one. Rumph. 3, 26 is liker but still does not represent this plant), "leaves ovate, tomentose, serrulate, petioled: calyx tomentose." Lin. Fl. Zeylan.

My principal object in introducing this plant is to aid in clearing up its complex synonyme by making the plant itself better known. It seems rather curious that the Hort. Mal. figure has never before been quoted for this plant, as it conveys a better idea of its general aspect than any of the others quoted. The objection to quoting it must I imagine have originated in its dioicous character, giving it more the appearance of *Rottlera* than *Croton* and, taking that view of it, it might with much probability be quoted for the male of *Rottlera tinctoria*, or at all events of a Rottlera though possibly one still unpublished in any modern system.

The plates of Rumphius have evidently nothing to do with this plant; Burman's, on the other hand, is certainly a form of it. Sprengel, I find in his "*Curæ posteriores*," reduces Linnæus' *C. lacciferum* to Willdenow's *C. aromaticum!* in place of reversing the case and upholding the prior name.

Before closing my remarks on these two genera, I may mention that I have adopted Klotch's genus *Tiglium* as distinct from *Croton* on the authority of Endlicher, presuming that he was satisfied of the propriety of its separation before adopting it. For myself, not having seen Klotch's revised character of *Croton*, I do not, so far as I can judge from the materials before me, feel certain on that point. If *Tiglium* is really justly separated from *Croton*, then I shall not be surprised to find that neither of the two species I have referred to *Croton* is now admitted into that genus. If they still retain that name, the genus *Tiglium*, it appears to me, might have been dispensed with. But on that point, with my present defective information, I cannot venture to express a decisive opinion.

The rudimentary petals of the female flower of *C. lacciferum* may perhaps have a higher value assigned to them, when viewed in connection with the whole genus, than I should deem necessary to attach with reference to the small Indian branch with which only I am acquainted.

PODOSTEMACEÆ.

Of this small but curious order, very little was known until within the last few years, and its affinities are still very obscure, being one of those families where analogies abound, but direct affinities are scarce. In this small group, the three leading divisions of the vegetable kingdom seem to meet. In habit, place of growth, and cellular structure of many of its species, it enters the Acotyledonous class: in some of the *Tulasneas* I observed well-marked monocotyledonous structure, while the seed is most distinctly dicotyledonous. So far as yet known, none of its species have petals, but three of its genera have a sufficiently well developed perianth and free, more or less numerous, stamens. All the others, 17 in number, are deficient in that verticel, but, in its place are furnished at the base of the pedicel with a spathe more or less resembling the spathe so general in the Aroideous family, so that, but for the dicotyledonous seed, it would, if not actually enter, at all events very nearly approach that order.

Since, then, the structure of its seed renders its reception into a monocotyledonous alliance inadmissible, in what dicotyledonous one can it find a suitable location? To this question, much more accomplished Botanists than I am, have hitherto failed in returning a satisfactory answer, I will not therefore make the attempt. Suffice it, therefore, to say, that Lindley *(Vegetable Kingdom)* places this very imperfectly flowered order in his Rutal alliance, a highly developed polypetalous group, including the Orange, Magohany, Melia, Mango, Rue, &c., to my mind, a highly-strained and unnatural position. Gardner takes a different view of the affinities. He conceives *Podostemons* nearly allied to *Nepenthes*, an order appertaining to the diclinous class, and which Lindley places in his Euphorbial alliance. This seems to me a more suitable location than the other; nearer affinities may yet be discovered, but, with our present scanty stock of information only, to guide us to correct conclusions, I think the diclinous class is that in which its nearest relationships will be found.

Twenty years ago only one Indian species of this order was known; twenty at least are now known: figures, more or less perfect, of 17 of which will be found in the following plates; and there are other three described and published, of which I have not seen specimens. In addition to those introduced

here, I now feel nearly certain that I have one or two additional species among my specimens; but which were overlooked when selecting specimens for representation, simply because at that time I had not sufficiently mastered their specific distinctions, and being then on the point of leaving home for some weeks, had not leisure to study the order.

In 1846, when Lindley published his "Vegetable Kingdom," the numbers described were 9 genera and 23 species. In February 1849 Tulasne published (*Annales des Sciances Naturelles*, 3d series, vol. 11) a monograph of the whole order, in which he has raised the numbers to 20 genera and 73 species.

In the following plates I have adopted the names of that monograph and propose now, in like manner, adopting his specific characters.

In July 1846, the late Mr. Gardner of Ceylon published in the Calcutta Journal of Natural History, characters and descriptions of 9 Indian species, and then sent specimens of them to Europe, and also gave me a set. The specimens sent to Europe were placed in the hands of M. Tulasne, and he has republished them under Gardner's names, but with his own specific characters; evidently before he had seen Gardner's paper in the Indian Journal.

Being thus in possession of authentic materials, I took Gardner's named specimens as the basis of my figures and for the characters have given both Tulasne's and his. Had time permitted me adequately to study the order, so as to feel certain of not falling into errors, by ignorantly substituting one species for another, I might have found better specimens for some of the Neilgherry species, but preferred accuracy to appearance. And yet, strange as it may appear, even under these circumstances I do not feel sure that at least one error has not been fallen into, that is, I now begin to suspect that the specimens of *D. Wightii* include two species, and that the one selected for representation is not that from which the author's character and description were taken. Up to the time of writing this note (4th December 1851), I have not been able to satisfy myself on the subject, but I hope, before passing the printed sheets through the press, to have done so, when a note, if required, will give the result. [P. S. Expected specimens have not yet arrived.]

It will perhaps be observed under the genera *Hydrobryum* and *Tulasnea* that the term Rhizoma is used for the part that in previous characters had been called fronds and stems. I cannot myself see the necessity for this change of terms, but feeling certain that confusion and difficulty are apt to be generated when two parties, describing the same thing, use different language, I have, simply to guard against that, adopted Tulasne's term, even though I do not think it necessary.

To render this account of the order more perfect, and under the conviction that many more species will yet be found in India, I subjoin Tulasne's *Conspectus Generum*, exhibiting a beautiful specimen of the dichotomous method of analysis for discovering the genus of any plant of this order we may have under examination.

CONSPECTUS GENERUM.

Genera.

PODOSTEMACEÆ—Floribus:

- dioicis (Tribus 1.) ... 1. *Hydrostachys*, Pet. Th.
- androgynis; (Tribus 11.)
  - achlamydeis (subtrib. 1.) fructus valvis:
    - æqualibus; (Sect. 1.) androcei; verticillis
      - completis; capsula;
        - costata; nervis:
          - æqualibus;
            - floribus racemosis.
              - staminibus liberis. 2. *Mourera*, Aubl.
              - stam. monadelphis 3. *Lacis*, Lindl.
            - floribus radicalibus. ... 4. *Marathrum*, H. et B.
          - inæqualibus ... 5. *Rhyncholacis*, †.
        - levi ... 6. *Ænone*, †.
      - incompletis; capsula:
        - levi ... 7. *Ligea*, †.
        - nervosa; staminibus:
          - liberis;
            - stigmatibus linearibus integris 8. *Apinagia*, †.
            - stigm. membranaceo-dilatatis dentatis. 9. *Lophogyne*, †.
          - monadelphis ... 10. *Dicræa*, Pet.—Th.
    - inæqualibus; (Sect. 2.) capsula:
      - 2-locul.; stam.:
        - duobus;
          - fructu costato;
            - involucro tubuloso. ... 11. *Podostemon*, Rich.
            - involucro capsulæformi. ... 12. *Hydrobryum*, Endl.
          - fructu levi ... 13. *Mniopsis*, Mart.
        - uno;
          - fructu costulato; anth. extrorsa, ... 14. *Oserya*, †.
          - fructu levi; anth. introrsa, ... 15. *Devillea*, †.
      - uniloc.; staminib:
        - longe monadelph.; stigmatib. brevibus, ... 16. *Sphærothylax*, Bisch
        - sub-liberis; stigmatibus longissimis, ... 17. *Castelnavia*, †.
  - chlamydeis (subtrib. 11.) perigonio:
    - tripartito
      - stamine 1. ... 18. *Tristicha*, Pet.—Th.
      - staminib 3 ... 19. *Lawia*, †.
    - 5-phyllo ... 20 *Weddellina*, †.

Dicræa (Pet. Thuar.).

Gen. Char. Staminodes two, equal, linear, the third usually aborting. Stamens two, monadelphous: anthers ovate; pollen didymous. Stigmas subulate, short, entire. Capsule several nerved.—Flowers radical, solitary, terminal, or racemose. (Tulasne Annal. des Sciance 3d series, vol. ii. 1849.)

1916-1. Dicræa Wallichii (Tul., *Podost. Wallichii*, R. Br.), frond greenish, medium-sized (mediocri), lobato-crisped on the margin, veined: free and fructiferous on the circumference: capsule obtuse, 8-ribbed; valves somewhat incurved at the apex.

Silhet. The specimens were communicated by the late Mr. Griffith.

1916-2. Dicræa dichotoma (Tul., *Podostemon dichotomus*, Gard.), stems long, naked, compressed, slender, flexible, sparingly and dichotomously branched: branches simple, long, nearly parallel, somewhat flexuose, sparingly floriferous towards the apex: leaves few, subulate, short, partly cohering: capsule 8-ribbed, ribs somewhat prominent.

Pycarrah river, Neilgherries.

Fronds linear, flattened, dichotomously branched: branches attenuated towards the extremities: flowers marginal: scales few, oblong lanceolate, long acuminate: spathe 2–3-lobed, glabrous: capsule 8-ribbed.

Gardner. Cal. Journal.

In the former of these characters the appendages at the foot of the pedicel are called leaves, in the latter, scales, the former appearing more consonant with analogy, I prefer it to the latter; I will therefore adopt it in my new species and perhaps even when translating Mr. Gardner's characters.

1916–3. Dicræa Wightii (Tul., *Podost. Wightii*, Gardner), stems compressed, 2-edged, flexuose, bud bearing at the angles: leaves narrow linear, simple, sheathing at the base: capsule 8-striated.

Pycarrah river, Neilgherries.

Fronds linear, flattened, flexuose, branched at the base: flowers marginal, leaves (squamæ) numerous, setaceous, long [about the length of the spathe]: spathe irregularly lobed, glabrous: capsule 8-ribbed. Gardner, l. c.

1916–4. Dicræa longifolia (R. W.), stems compressed, branched, alternately nodose: lower nodes leafy only, terminal ones floriferous: leaves of the lower nodes long linear, strap-shaped; those of the floriferous ones sheathing at the base, subulate above; two or three times the length of the 3-lobed spathe: capsule 8-ribbed.

Malabar, Rev. E. Johnson.

In the figure the artist has not, owing to having selected a very small plant, shown the lower simply leafy tubercles.

1916–5. Dicræa rigida (Tul., *Podostemon rigidus*, Gardner), branches long, rigid, dichotomous, parallel, leafless; the flowering ones compressed: flowers secured with a double involucre (bis involucratis, Tul.).

Pycarrah river, Neilgherries.

Fronds linear, flattened, branchy towards the base: flowers marginal: leaves (scales, G.) few, distichous, imbricating, ovate oblong, obtuse: spathe irregularly lobed, glabrous: capsule 8-ribbed. (Gardner.)

There seems a discrepancy here; the twice involucred flowers of the one, and the distichous scales of the other. The difference however is in the language, not the thing described. Gardner's scales are sheathing and enclose the proper involucre like a second one, but I view it as introducing a confusion of terms to call them an involucre in one case, and not in all. For myself, had I been writing original descriptions, I would probably have used two terms to designate the two series of parts, calling the exterior series, corresponding with Gardner's squamæ, either an involucre or bracts, the divisions of which could be described, as leaves or bracts are; and the interior, corresponding with Tulasne's involucre, I would, with Gardner, have called a spathe, and when, as in my *D. longifolia*, I found, in addition, distinct leaves, would have called them by that name. With the aid of three terms, in place of two, the difficulty of distinguishing such species as it, would have been diminished, and we should not, as in the present instance, had confusion of ideas introduced by misapplication of terms.

On re-examination I find the artist has correctly represented the said scales or bracts, which are sheathing at the base, and end in a fleshy pointed cuspis or tooth, and not properly obtuse.

1917–1. Dicræa elongata (Tul., *P. elongatus*, Gard.), stems sub-ligneous, terete, simple, very long: leafy buds (gemmis foliosis) distichous, alternate; the inferior ones floriferous, the upper ones sterile, with longer, linear, entire, evaginate leaves; those of the fertile ones reduced to a sheath: capsule 8–10, striated with slender nerves.

Rivers in Ceylon. In the Mahawalle Gunga below Peradenia.

Fronds cylindrico-capillary, very long, sparingly branched: leaves fascicled, flattened, setaceous: flowers marginal: spathe irregularly lobed, glabrous: capsule 8-ribbed.

The drawing was taken from very old specimens, the terminal fascicles of leaves of which, seem all to have disappeared. Mr. Gardner describes them as nearly ½ of an inch long, fascicled towards the extremities of the fronds.

1917–2. Dicræa stylosa (R. W.), stems very long, ramous, compressed, leafless: flowers distichous on the margin: involucre 4-leaved, imbricating, distichous; the exterior pair smaller, the interior, nearly equaling the spathe obtuse, sheathing at the base subcuspidate at the point: styles pubescent, equaling or exceeding the ovary: capsule six-ribbed.

Mountain streams, Malabar, Rev. E. Johnson.

The styles in this species differ so much from all the others I have seen, that I have thought it well to call attention to this circumstance by naming the species with reference to them.

Podostemon (Mich).

Gen. Char. Involucre (spathe, Gard.) elongated, tubular, lacerated at the apex in opening. Staminodes 3, linear, the middle one attached to the antheriferous filament, sometimes wanting. Stamens two, monadelphous. Pollen didymous. Stigmas linear, acute, short. Capsule 8-ribbed.—Caulescent herbs, leaves distichous, linear, entire: flowers terminal or as if axillary.

The artist has failed in two points to bring out the generic character—1st, he has overlooked the staminodes, which are conspicuous enough when looked for and found, but are so thin and diaphanous

I

as to be easily overlooked, unless expressly sought for. In the next place he has not caught the peculiar character of the capsule, which splits into two halves, one of which drops off, leaving the other persistent on the end of the peduncle. The capsule, too, is 2-celled but which, owing to the partition easily separating from the valves, can scarcely be detected in a transverse section. The distinction between this and *Dicræa* is certainly not easily made out in this species, though quite possible under the guidance of a knowledge of the characters, and the points to be looked for, which the draftsman did not possess, and I was not present to direct him.

1918–1. Podostemon subulatus (Gardner, Tul.), stem thick, rugous, short, simple or several, dichotomous; branches few, close-packed, spreading, short, densely leafy: limb of the leaves long, linear, subulate, simple, the dilated sheath stem-clasping: stamens inserted near the middle of the pedicel. Tul.

Rivers in Ceylon. Mahawalle Gunga near Holnicut.

Fronds rigid, erect, terete, dichotomously branched: branches densely floriferous: flowers distichous (two-ranked); scales solitary, much elongated, subulate, coriaceous: spathe 3–4-lobed, rough; capsule 8-ribbed. G.

The sheath of the leaves or scales is coriaceous, not the prolongation; at least as seen in dried specimens.

Hydrobryum (Endlicher).

Gen. Char. Involucre small, ellipsoid, bladder-shaped, splitting along one side only, and then boat-shaped, two-valved. Staminodes two, linear, long. Stamens 2, monadelphous. Pollen didymous. Stigmas two, sometimes tooth-like, entire; sometimes dilated, membranous, wedge-shaped, toothed. Capsule with 8–12 slight ribs.—Frondose herbs with scattered floriferous buds (gemmæ) and few leaves.

1918–2. Hydrobryum olivaceum (Tul., *Podostemon olivaceus*, Gard.), rhizoma membranaceous, lichen-like, repandly foveolate, olive-green: buds foliaceous, scattered, 1-flowered: leaves boat-shaped, small: capsule 8-nerved.

Rivers in Ceylon. Mahawalle near Holnicut. Mahawalle below Peradenia.

Fronds decumbent, sub-orbicular, lobed, olive-coloured: flowers exserted, from the upper part of the frond: scales 4-distichous, imbricating, obtuse: spathe dehiscing longitudinally, glabrous; capsule 8-ribbed.

1918–3. Hydrobryum griseum (Tul., *Pod. Griseus*, Gard.), rhizoma unequal, repand, greyish: foliaceous buds numerous: capsule 8-nerved.

Pycarrah river, Neilgherries.

Fronds decumbent, sub-orbicular; lobes undulated, greyish: flowers springing from the upper part of the frond; scales six distichous, imbricating, obtuse: spathe somewhat 2-valved, rough; capsule 8-nerved. —Very near the preceding, but is considered by Mr. Gardner sufficiently distinct.

Mniopsis (Martius).

Gen. Char. Involucre utriform, obovate, somewhat tubular, mouth several-lobed or toothed. Staminodes 2–3, linear, the middle one attached to the antheriferous filament, or wanting. Stamens 3, monadelphous. Pollen didymous. Stigmas sometimes thick. several-lobed; sometimes slightly elongated, entire, Capsule spherical, quite smooth. Small, caulescent or frondose herbs, flowers terminal, sometimes sub-racemose.

1918–4. Mniopsis Hookeriana (Tul.), rhizoma frond-like, thick, variously repand, gemmiferous on the margin: buds (gemmæ) one-flowered: leaves few, short or scale-like, ovate oblong, entire, distichously equitant: stigmas "anguloso-elongatis," entire, distinct. Tul.

In rivers near Bombay, Law. The specimens represented were communicated by Mr. Law.

1918–5. Mniopsis Johnsonii (R. W.), rhizoma decumbent, sub-orbicular, variously repand on the margin; flower-buds scattered over the surface, 1-flowered: leaves 4–6, short, ovate, obtuse, imbricating: stigmas dentiform: capsule globose, ecostate.

Rivers in Malabar. Rev. E. Johnson.

This seems to me a species fitted to unite *Hydrobryum* and *Mniopsis*, having nearly the spathe of the one, and capsule of the other, I am not quite certain to which of the two organs the higher generic value attaches, but presuming that it is the capsule, I have referred this species to *Mniopsis;* if the higher value belongs to the spathe or involucre, then it must, I presume, be transferred to *Hydrobryum.*

Dalzellia (R. W., *Lawia*, Tulasne).

Gen. Char. Perigonium calycine, 3-parted, veinless, lobes equal, imbricated in æstivation. Stamens 3, free, alternate with the lobes of the perianth. Stigmas 3, sessile, linear, short, diverging. Capsule 3-celled, longitudinally 9-ribbed. Small thrattiform or frondose plants, broadly expanding on all sides, or linearly-branched: leaves entire, the interior ones of each one-flowered, bud connate into an open tube: flowers scattered and terminal.

Feeling myself under the necessity of changing Tulasne's generic name, I have substituted his own very deserving one for that of my respected friend Mr. Law, to whom I had the honor of dedicating a genus so long ago as 1845, No. 1070 of this work, and republished it in the Calcutta Journal of Natural History in July 1846, with the following note:

" A short time before the late Mr. Griffith left Calcutta for Malacca, I sent him drawings of two species of *Podostemon* and specimens of several others, as materials towards a monograph of the Indian species of the order, which he then contemplated undertaking. Among those sent was one from Mr. Law, which we considered the type of a new genus, and which (at my suggestion) was to have been dedicated to its discoverer. Unfortunately the monograph, so far at least as I have heard, was never written; I therefore took advantage of the opportunity which this plant presented, while naming a figure of it for my Icones, of placing Mr. Law's name permanently on the records of Botany, by dedicating the genus to him, though, perhaps, less appropriately than if the plant had been found by himself."

This note will, I trust, remove all doubts on the subject of priority, as a manuscript name can never take precedence of one defined and published. This however has been done in the case of *Giesekia rubella*, a MS. name at the time my *G. molluginoides* was published in the same paper, but which latter, notwithstanding its priority of publication, is now quoted as a synonyme. To prevent a repetition of such supercession I take this opportunity of noticing the circumstance.

P. S. While this sheet was passing through the Press I discovered that the name *Tulasnea* was preoccupied. I have therefore taken the liberty of substituting that of N. A. Dalzell, Esq., M. A., of the Bombay Medical Establishment, a recent but most promising addition to the Indian Botanical corps, whose papers in Hooker's Botanical Journal give assurance of his attaining the highest excellence in this, the branch of Science to which he is devoting his attention. I beg the favor of the reader changing the name on the plate.

1919–1. Dalzellia Zeylanica (R. W., *Tristicha Zeylanica*, Gard., *Lawia Zeylanica*, Tul.) rhizoma broadly expanding, thick, hardish: some of the leaves rosulate linear, short; some scattered, shortly ovate, acute, papillæform: flowers numerous, scattered, rising from a broad longish sheath, externally beset on all sides with prominent papillæ: pedicel longish. Tul.

Rivers in Ceylon. On smooth gneiss rocks in the Mahawalle Gunga, near Peradenia.

Fronds sub-orbicular, horizontal, irregularly-lobed: leaves fascicled, small, linear, obtuse; flowers springing from the upper surface of the fronds: spathe conical, fleshy, echinate, open above: capsule 9-ribbed. Gard.

1919–2. Dalzellia foliosa (R. W.), rhizoma spreading, lichen-like, lobed and free on the margin: buds for the most part on the free margins: leaves numerous, fascicled round the base of the pedicel, long, linear, pointed: no sheath: pedicel two or three times the length of the leaves.

Rivers, Salset near Bombay, Law.

This is a very distinct species and most easily recognized by its tufts of well-formed leaves, and no sheaths. The leaves under the microscope exhibit very conspicuously the hexagonal cellular texture so generally observable in monocotyledonous plants. For the accuracy of the representation of the section of the seed at figure 8 of the plate, I will not venture to vouch. If correct, it is an anomaly in the order.

1919–3. Dalzellia Lawii (R. W.), rhizoma spreading, margins free, gemmiferous: leaves, surrounding the sheath, few, short, broader than those within, somewhat lanceolate; those of the sheath very numerous, short, needle-shaped, recurved: pedicels shortish: capsule ovoid, scarcely angled.

Salset near Bombay, Law.

This is very distinct from the preceding in the character of its leaves and sheaths, and is about equally distinct from the following in the length of the pedicel. This is a point not well brought out by the artist, whose eye for proportion is not very correct for things in their natural state, and for objects as seen under the microscope is utterly wanting. He seems to look more to the space available on his paper than to the relative sizes of parts of the object to be delineated. I have now before me side by side on the field of the microscope specimens of all the three Bombay species. The peduncles of 2 and 4 are about the same length, but that of 2 is nearly twice as thick: while the length of No. 3 is less by two-thirds than that of the others. I feel it necessary to mention this peculiarity of the artist's vision to prevent the magnified figures, which should be especially correct, misleading those who consult them. The forms of parts are correctly enough shown, but the relative sizes are often incorrect.

1919–4. Dalzellia pedunculosa (R. W.), rhizoma spreading, margins free, lobed, gemmiferous: leaves, all aggregated and united to form the sheath, short bristle-like: peduncle 6–8 times the length of the sheath, very slender; capsule ovoid, round, or scarcely angled.

Salset, Bombay, Law.

Though so like in character to the last, I believe this is a perfectly distinct species.

1920. Dalzellia ramosissima (R. W.), rhizoma very long, slender, much branched, with numerous lateral floriferous branchlets, with one or several flowers, aggregated towards the apex: each flower bud usually accompanied with two slender, filiform, leafy ramuli: leaves subulate, imbricating, exterior ones short obtuse; middle ones longer, acute; interior 6 or 8 longest, ligulate, connate at the base, forming the short sheath: filaments at first very short, afterwards elongating. Anthers oblong, somewhat sagittate at the base, cells distinct: styles filiform, about the length of the ovary, hispid.

Rivers in Malabar near Cochin, Rev. E. Johnson.

This is a remarkable species on account of the great size to which it grows, some of my specimens being at least 18 inches long.

Two points noticed above have either been overlooked by the draftsman, or they are not constant, and only met with in older plants than the specimen selected for representation: I allude to the short lateral floriferous branchlets each bearing from 2 or 3 to 6–8 sessile flowers, congested on their extremities. The other point overlooked, most probably from the specimens used being too young, is the filiform ramuli springing from near the base of the peduncles: these, so far as I have yet observed, do not, in any case, exceed the length of the peduncle, are not thicker than a thread, and clothed their whole length with very slender, longish, imbricating leaves. It is certainly a very distinct species, but whether or not these two points are merely occasionally present, or are constant and have been overlooked by the artist, is more than I can tell.

Tristicha (Pet., Th.).

Gen. Char. Perianth 3-parted, lobes imbricated in æstivation. Stamens 1; the rest of the character as in *Dalzellia.*

1920–2. Tristicha bryoides (Gard., *T. hypnoides?* Tul.), stem erect, ramous; leaves imbricating, elliptic or elliptico-ovate, obtuse: pedicels axillary; spath deeply 2–3-lobed; lobes orbicular: capsule 9-ribbed. —Gard.

This being an American plant is introduced simply to show by contrast the difference between the two genera. It seems not improbable that species of the American genus may yet be found in India. These two genera mutually represent each other in their respective floras, *Dalzellia* being to the Indian what *Tristicha* is to the American branch of the order. And, curiously enough, the numbers are nearly the same in each country, Tulasne has enumerated 5 species of *Tristicha*, and I have 5 of *Dalzellia*, to which 2 have to be added, *D. pulchella* and *D. longipes*, which I have not seen, raising the Indian genus to seven species.

PRINTED AT THE AMERICAN MISSION PRESS, MADRAS, JANUARY 1852.

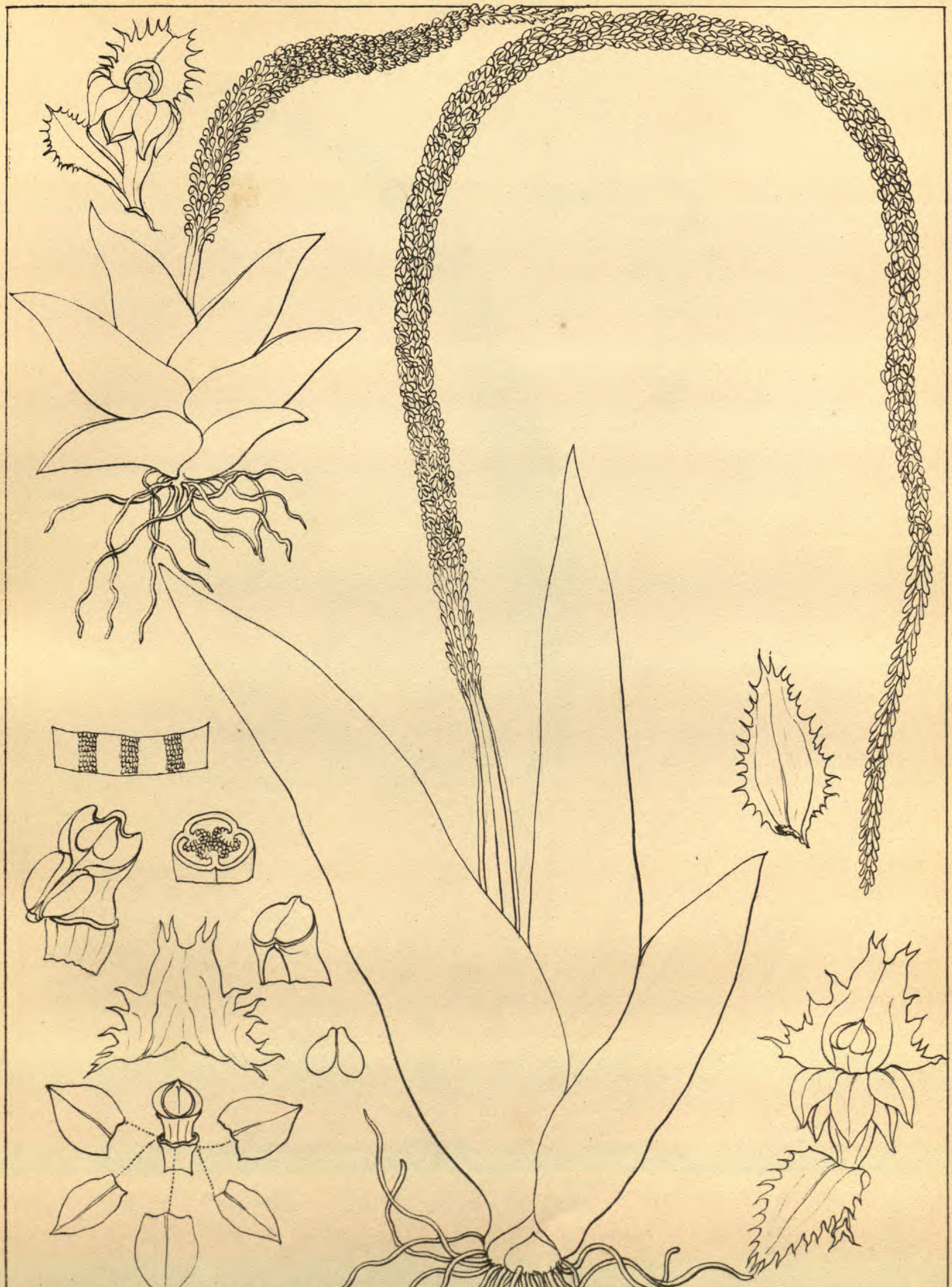
Govindoo, del. Dunphy, Lith.

Oberonia Brunoniana (R: W.)

Oberonia platycaulon (R. W.)

Govindoo, del. Dumphy, Lith.

Oberonia Lindleyana (R.W.)



Govindoo, del. Dumphy, Lith.

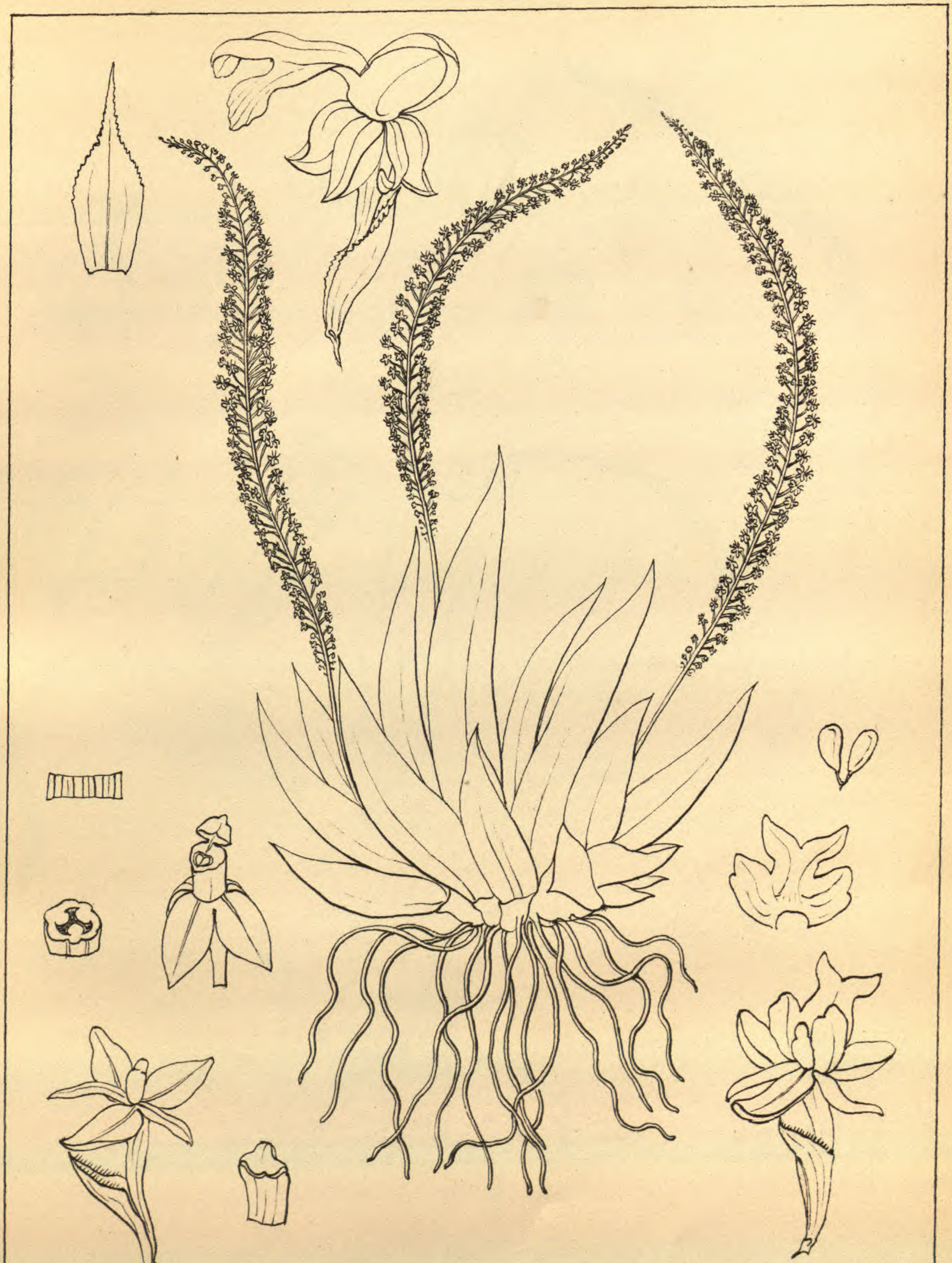
Oberonia denticulata (R.W.)

Govindoo, del. Dumphy, Lith.

Oberonia verticallata (R.W.)

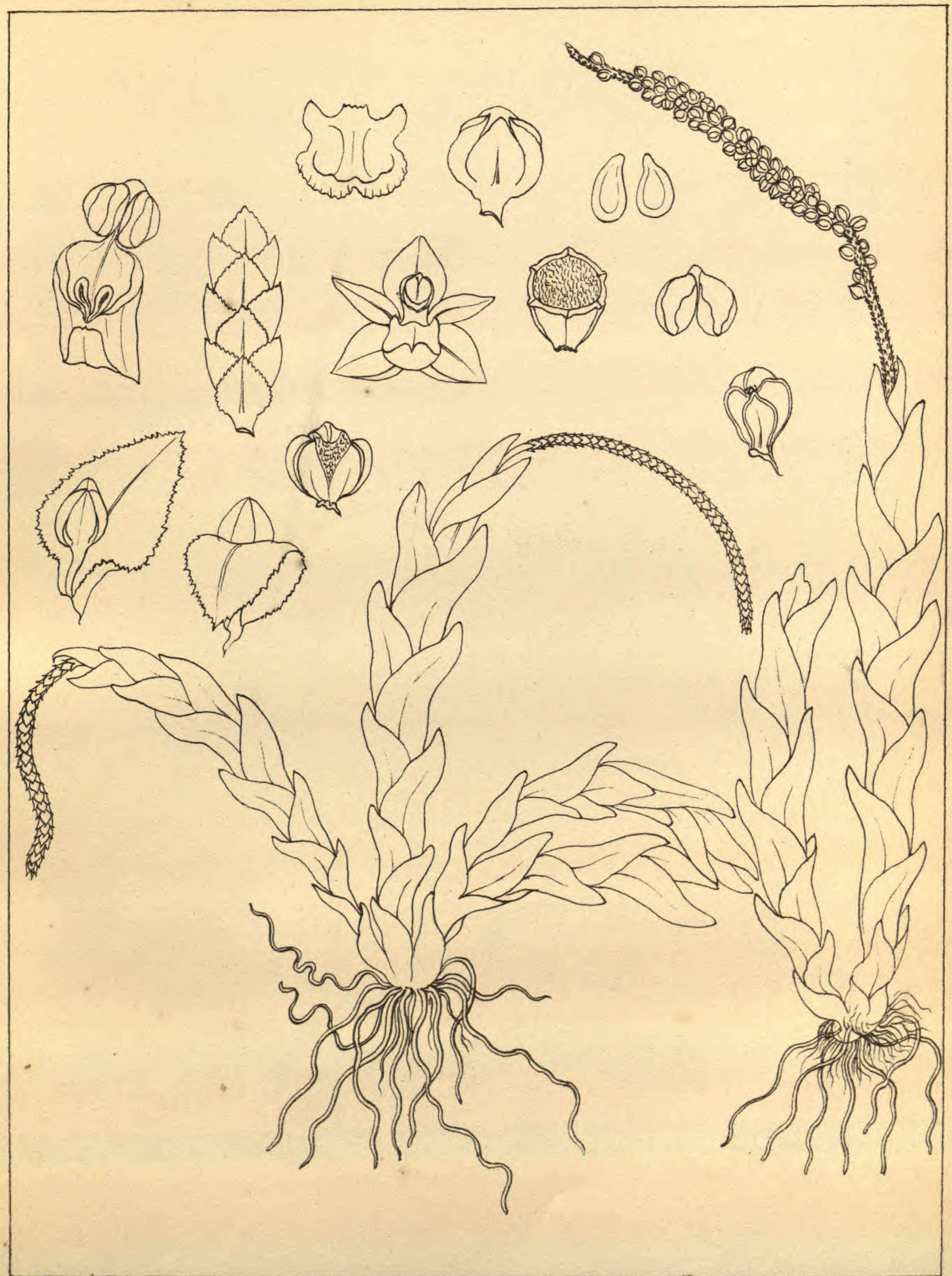
Govindoo, del. Dumphy, Lith.

Oberonia Wightiana (Linn)



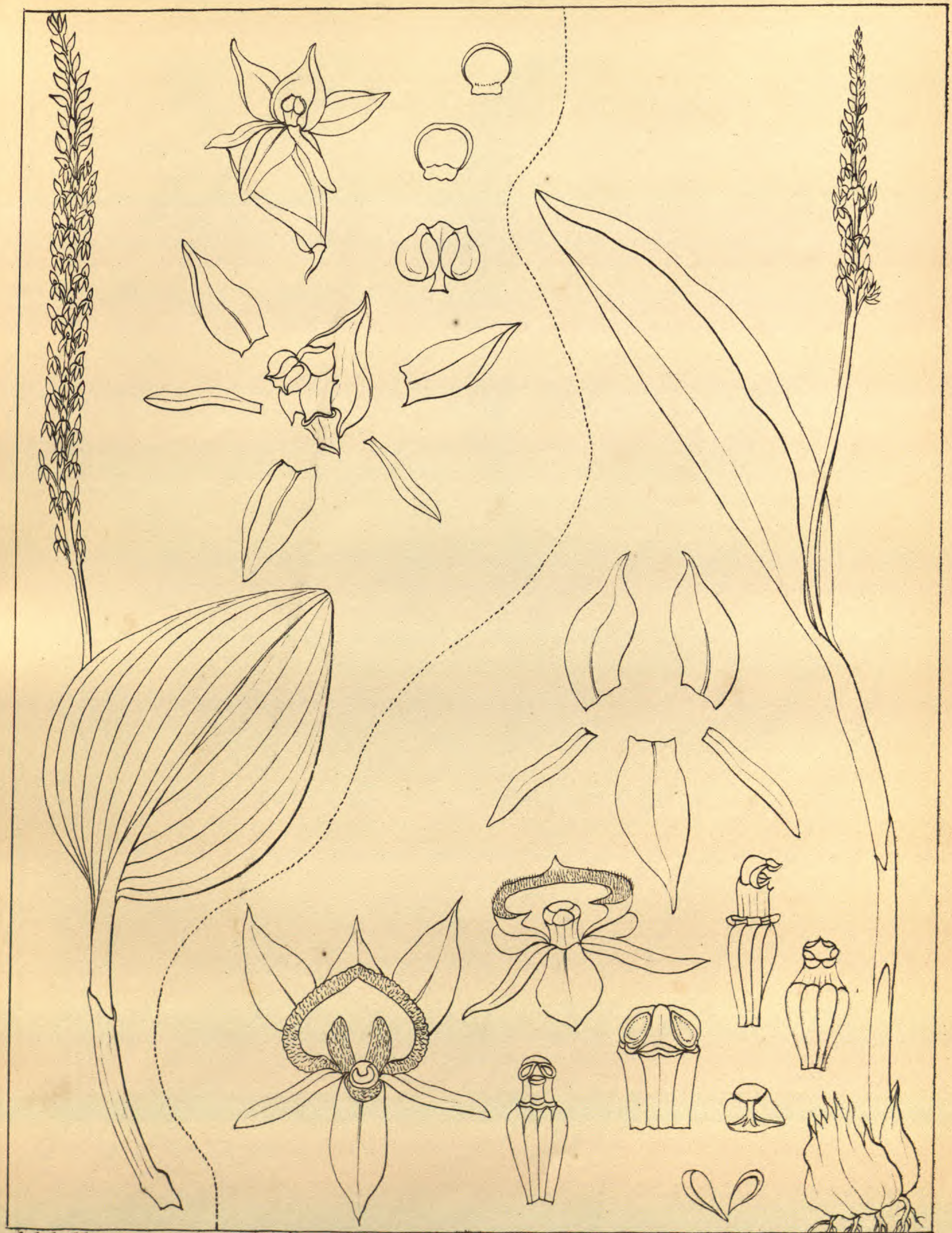
Govindoo, del. Dumphy, Lith.

Oberonia Arnottiana (R.W.)



Govindoo, del. Dumphy, lith.

Oberonia imbricata (Blume)



Govindoo, del. Dunphy, Lith.

Dienia cylindrostachya (Lind.)

Govindoo, del. Dumphy, Lith.

Microstylis discolor (Lind.)

Govindoo, del. Dumphy, Lith.

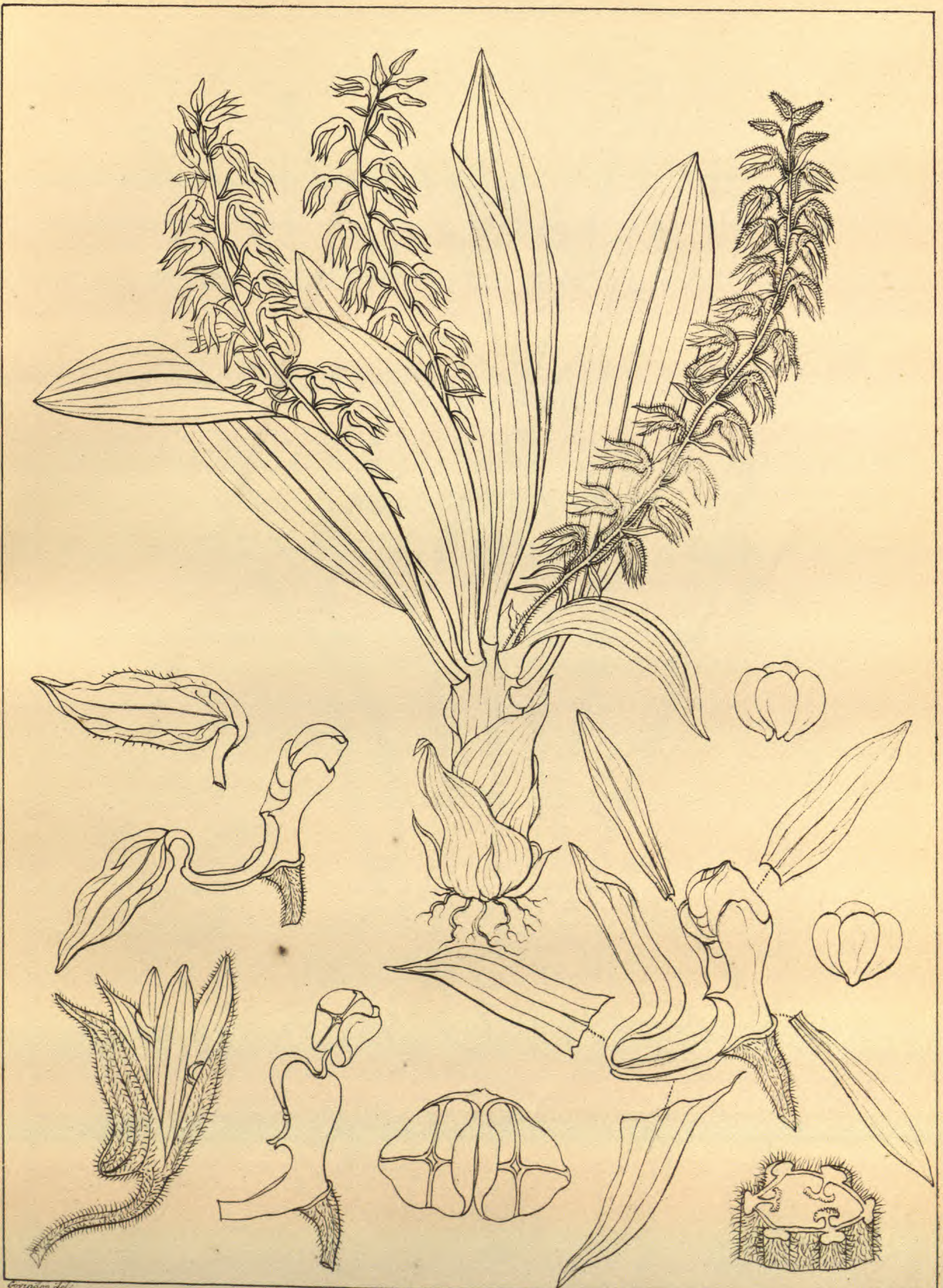
Microstylis luteola (R. W.)

Govindoo, del. Dunphy, Lith.

Liparis biloba (R.W.)

Govindoo, del. Dumphy, Lith.

Eria polystachya (A. Rich)



Govindoo, del. Dumphy, Lith.

Eria pubescens (R. W.)

Govindoo, del. Dumphy, Lith.

Eria pauciflora (R.W.)

Govindoo, del. Dumphy, Lith.

Eria reticosa (R.W.)

Govindoo, del. Dunphy, lith.

Cælogyne nervosa (A. Rich.)

Govindoo, del. Dunphy, Lith.

Cœlogyne corrugata (R.W.)

Govindoo, del. Dunphy, Lith.

Cœlogyne odoratissima (Lind)

Govindoo, del. Dumphy, Lith.

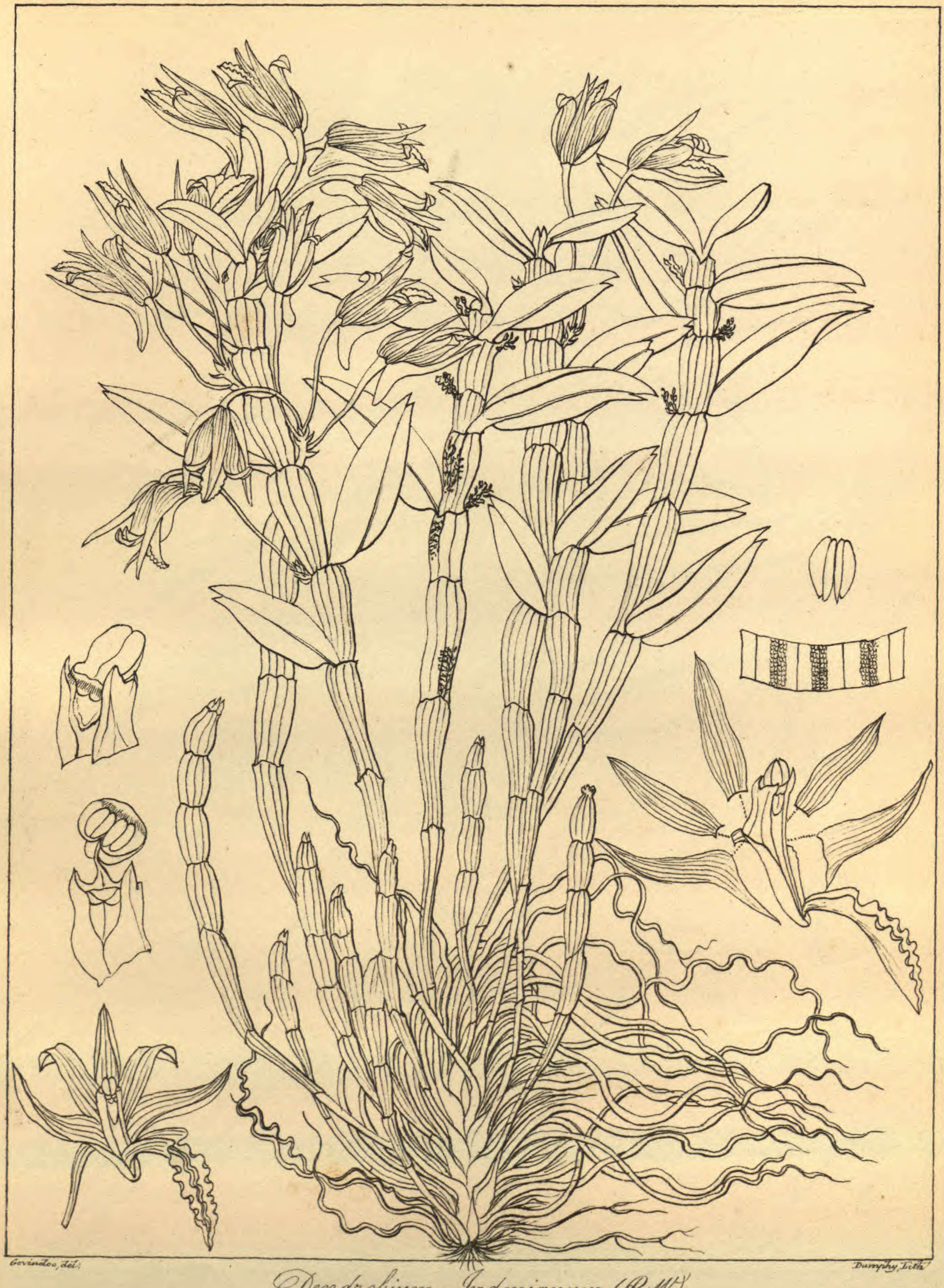
Cœlogyne angustifolia (A. Rich.)

Govindoo del. Dumphy, Lith.

Dendrobium filiforma (R.W.)

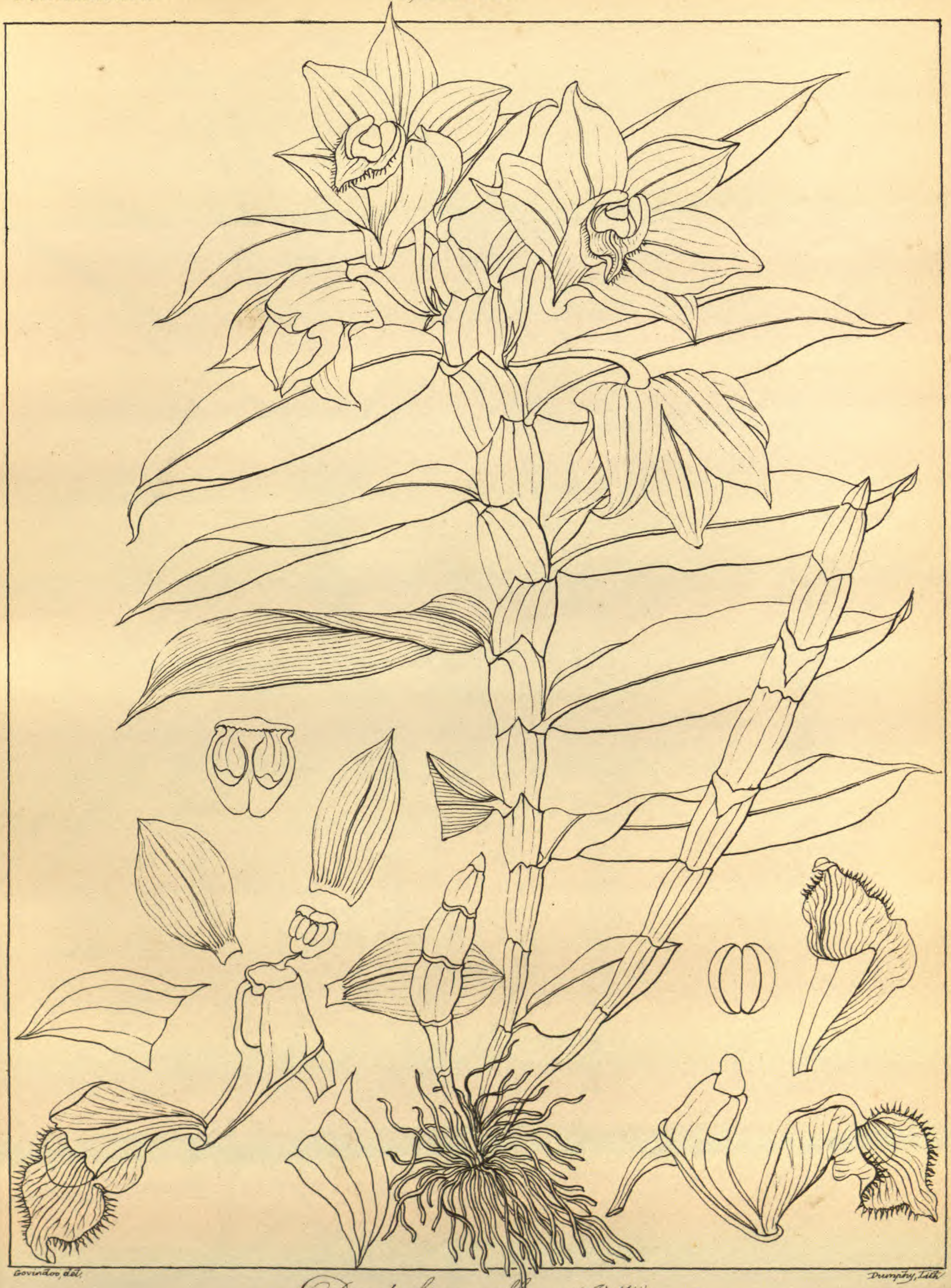
Govindoo, del. Dunphy, lith.

Dendrobium humile (R.W.)



Govindoo, del. Dumphy, Lith.

Dendrobium Jerdonianum (R.W.)



Govindoo, del. Dumphy, Lith.

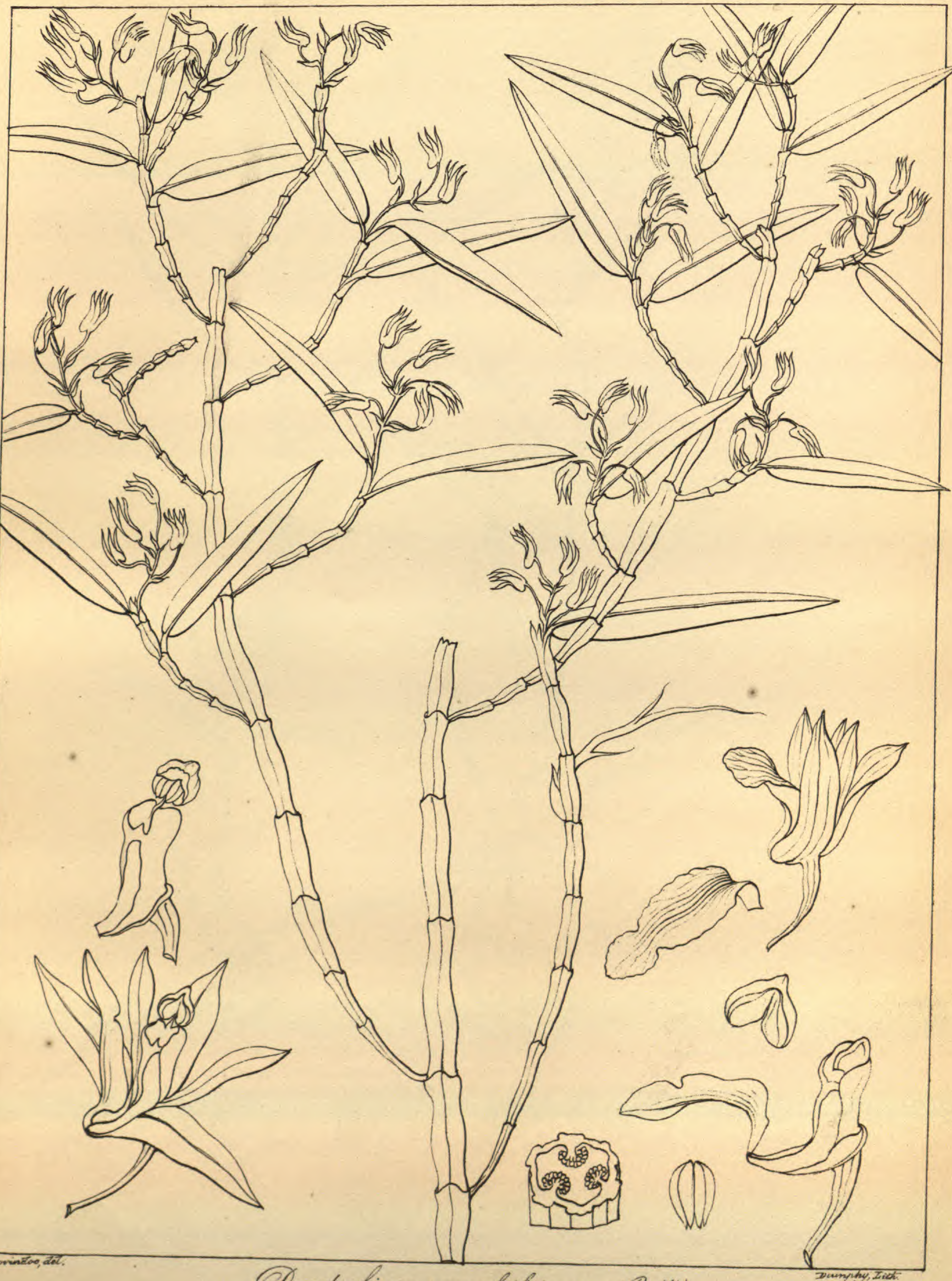
Dendrobium album (R.W.)

Govindoo, del. Dunphy lith.

Dendrobium aureum (Lind)

Govindoo, del. Dunphy, Lith.

Dendrobium macrostachyum (Lind)



Govindoo, del. Dumphy, Lith.

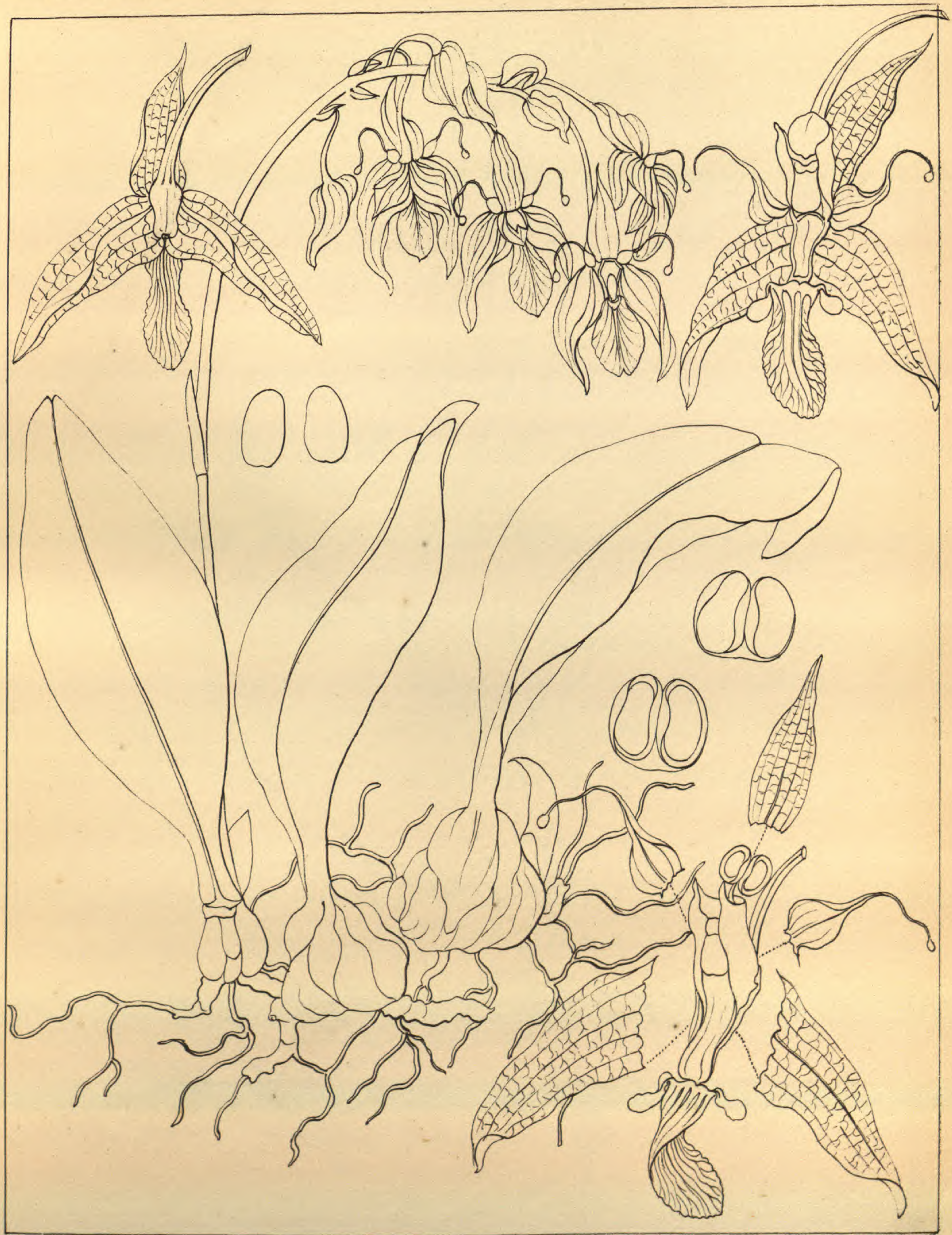
Dendrobium ramosissimum (R. W.)

Govindoo, del. Dumphy, Lith.

Dendrobium graminifolium (R.W.)

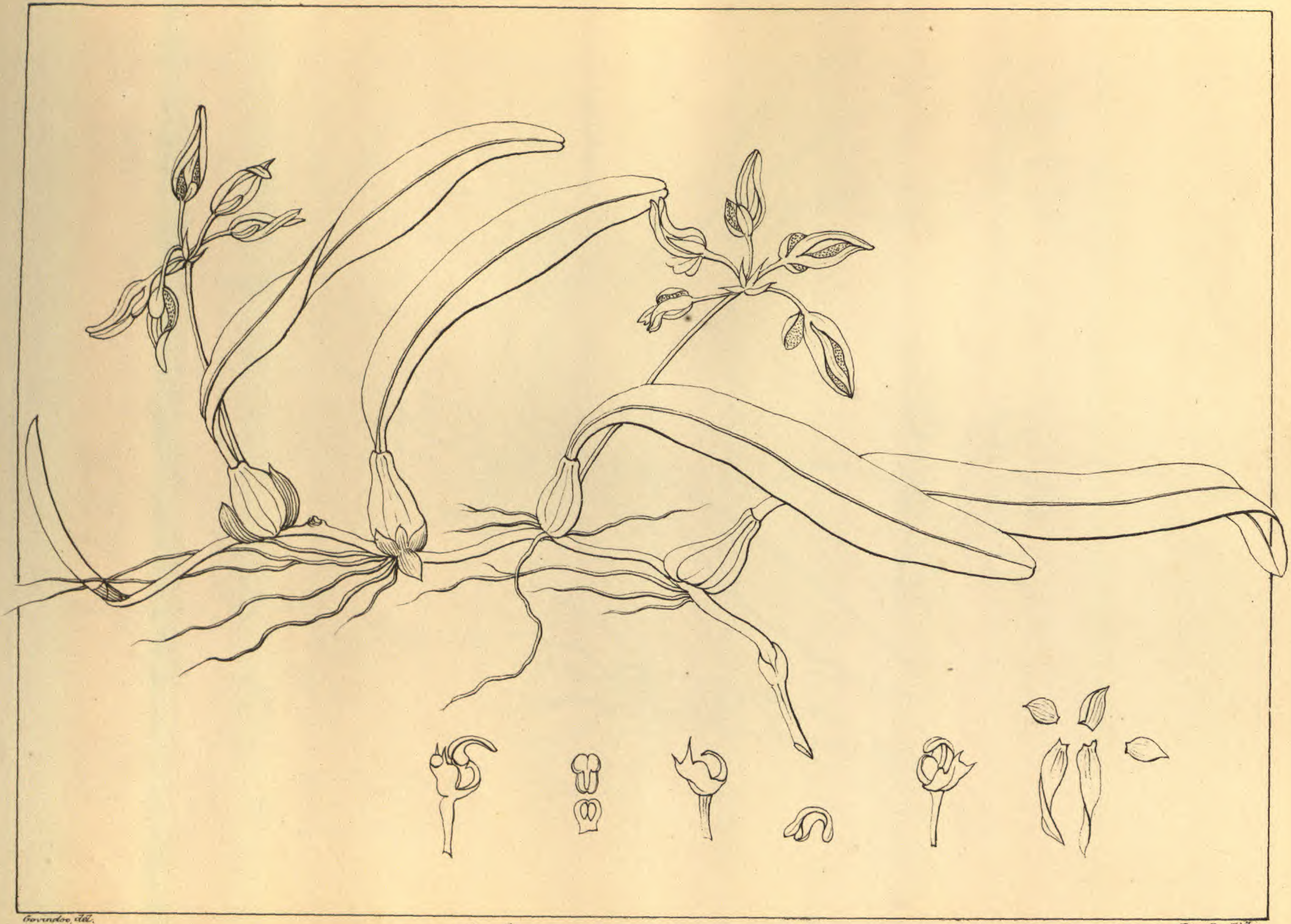
Govindoo, del. Dunphy, Lith.

Bolbophyllum Neilgherrense



Govindoo, del. Dumphy, Lith

Bolbophyllum fuscopurpureum (R.W.)



Govindoo, del. Dumphy, Lith.

Cirrhopetalum macræi (Lind.)

Govindoo, del. Dumphy, Lith.

Cirrhopetalum albidum (R.W.)

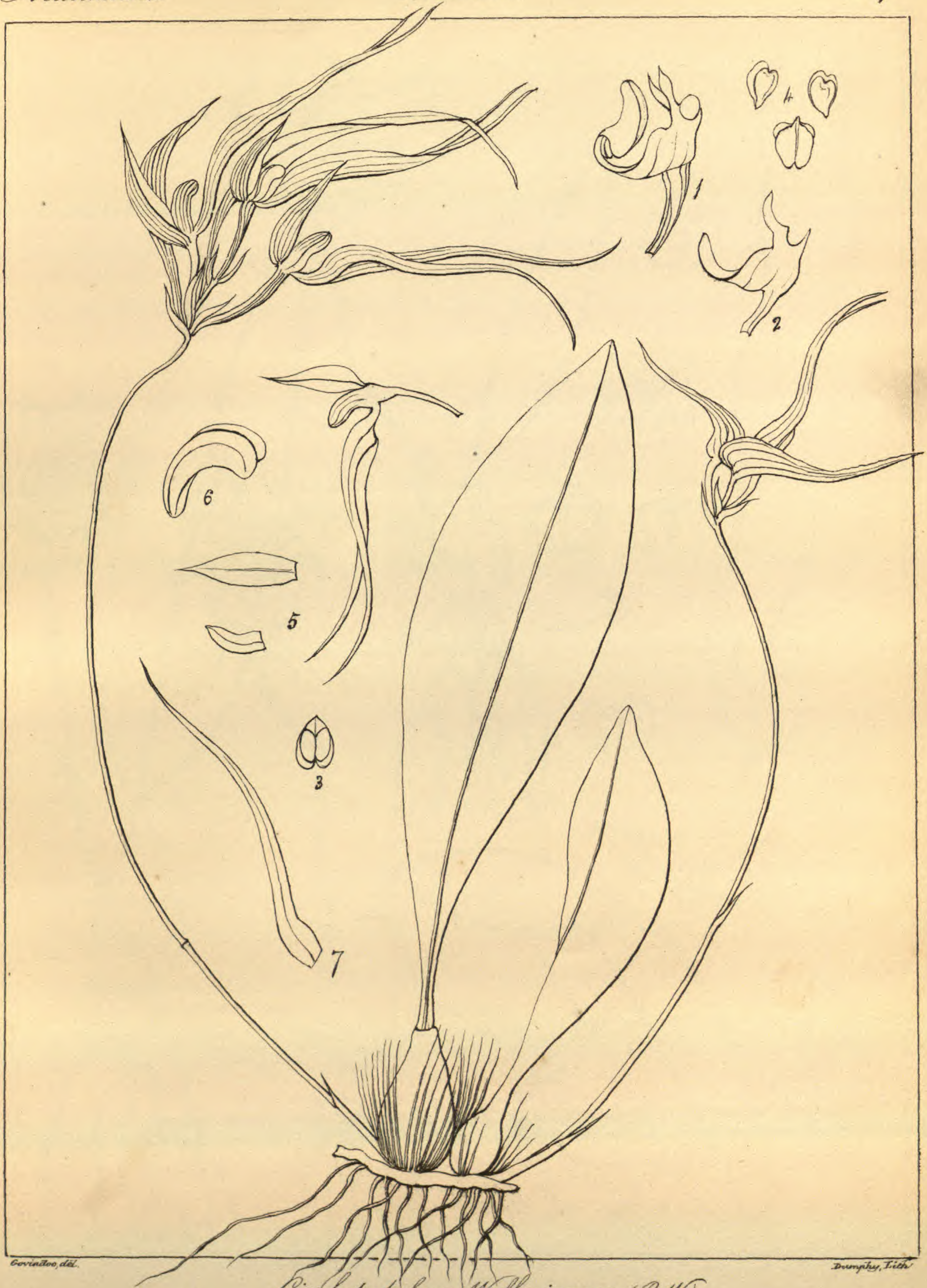
Govindoo, del. Dumphy, Lith.

Cirrhopetalum Neilgherrense

Govindoo, del. Dumphy, lith

Cirrhopetalum fimbriatum (R.W.)

Cirrhopetalum grandiflorum (R.W.)



Govindoo, del. Dunphy, Lith.

Cirrhopetalum Walkerianum (R.W.)

Govindoo, del. Dunphy, Lith.

Cerrhopetalum caudatum (R.W.)

Govindoo, del. Dunphy, Lith

Phaius bicolor (Lind.)

Govindoo, del. Dumphy, lith.

Arundina bambusifolia (Lind.)

Govindoo, del.

Apaturia Lindleyana (R.W.)

Dumphy, Lith.

Govendoo del. Dumphy, Lith.

Ipsia speciosa (Lind.)

Govindoo, del. Dunphy, lith.

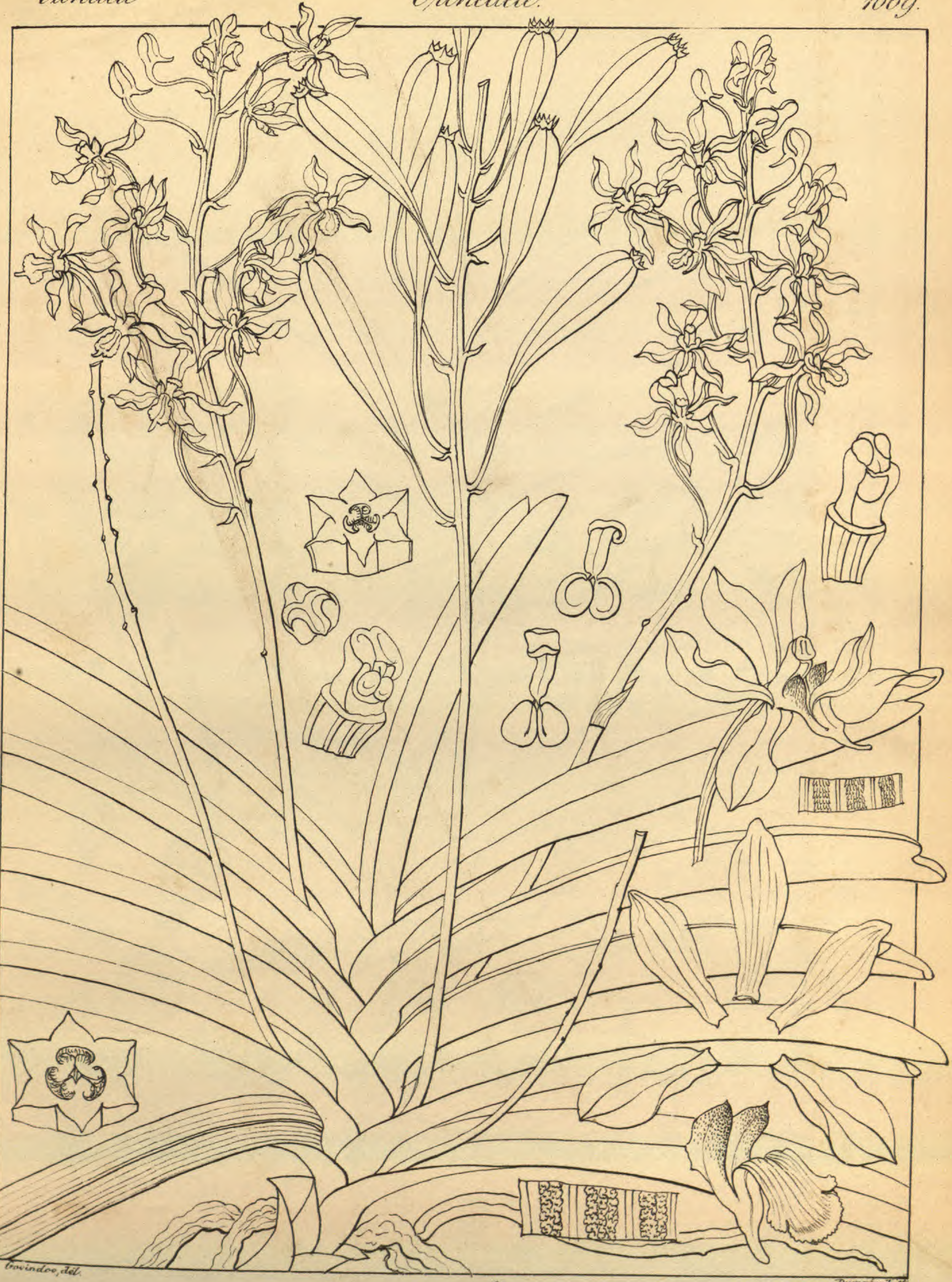
Calanthe Perrottetii (A. Rich)

Govindoo, del. Dumphy, Lith.

Eulophia ramentaceæ. (Lind.)

Govindoo, del. Dumphy, Lith.

Eulophia macrostachya (Lind)



Vanda parviflora (R.W.)

Govindoo, del. Dumphy, Lith.

Vanda Wightiana? (Lind W.C.)

Govindoo, del. Dumphy, Lith.

Vanda pulchella (R.W.)

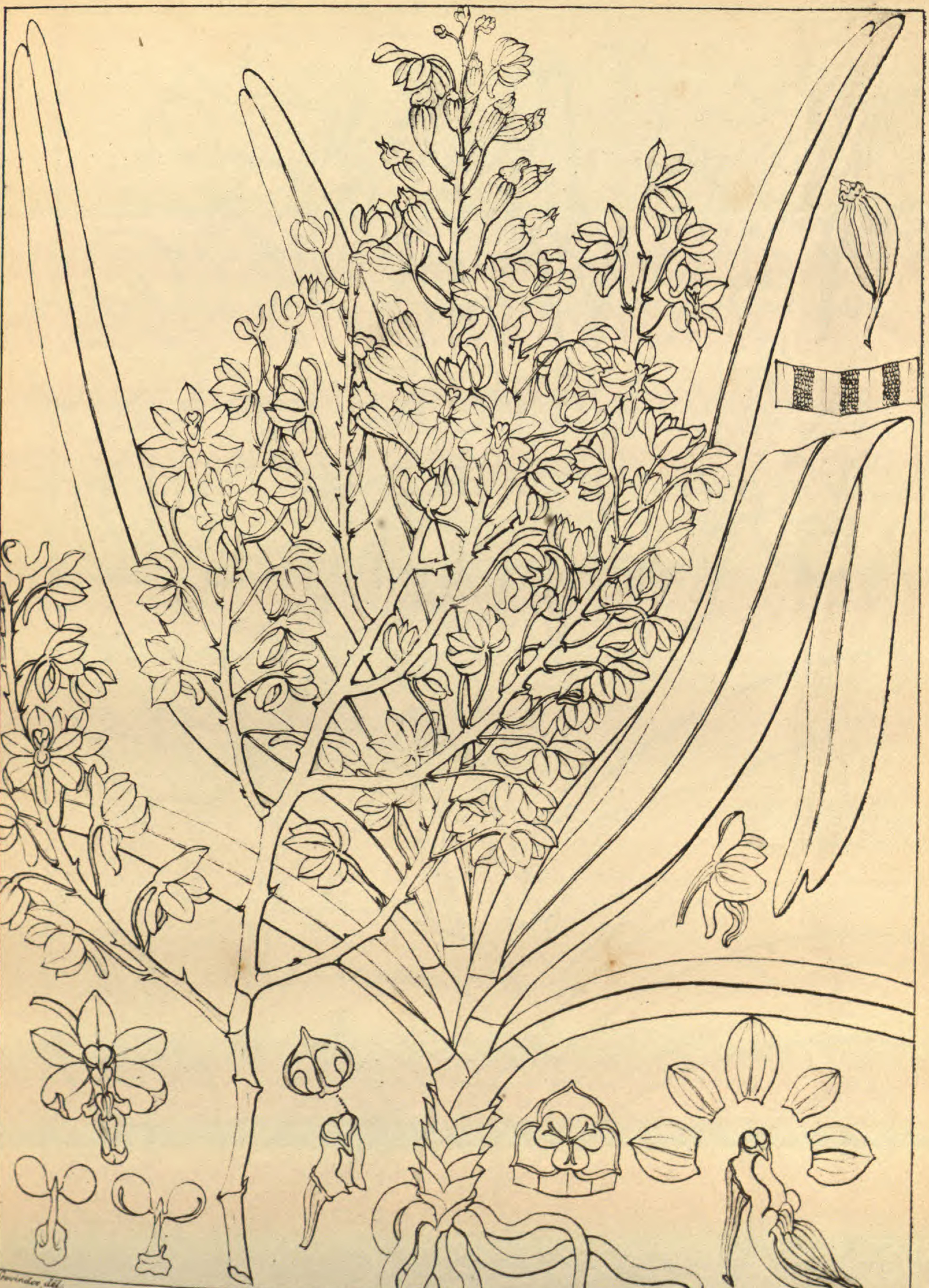
Govindoo, del. Dumphy, Lith.

Saccolabium papillosum (Lind.)

Saccolabium rubrum (Lind)

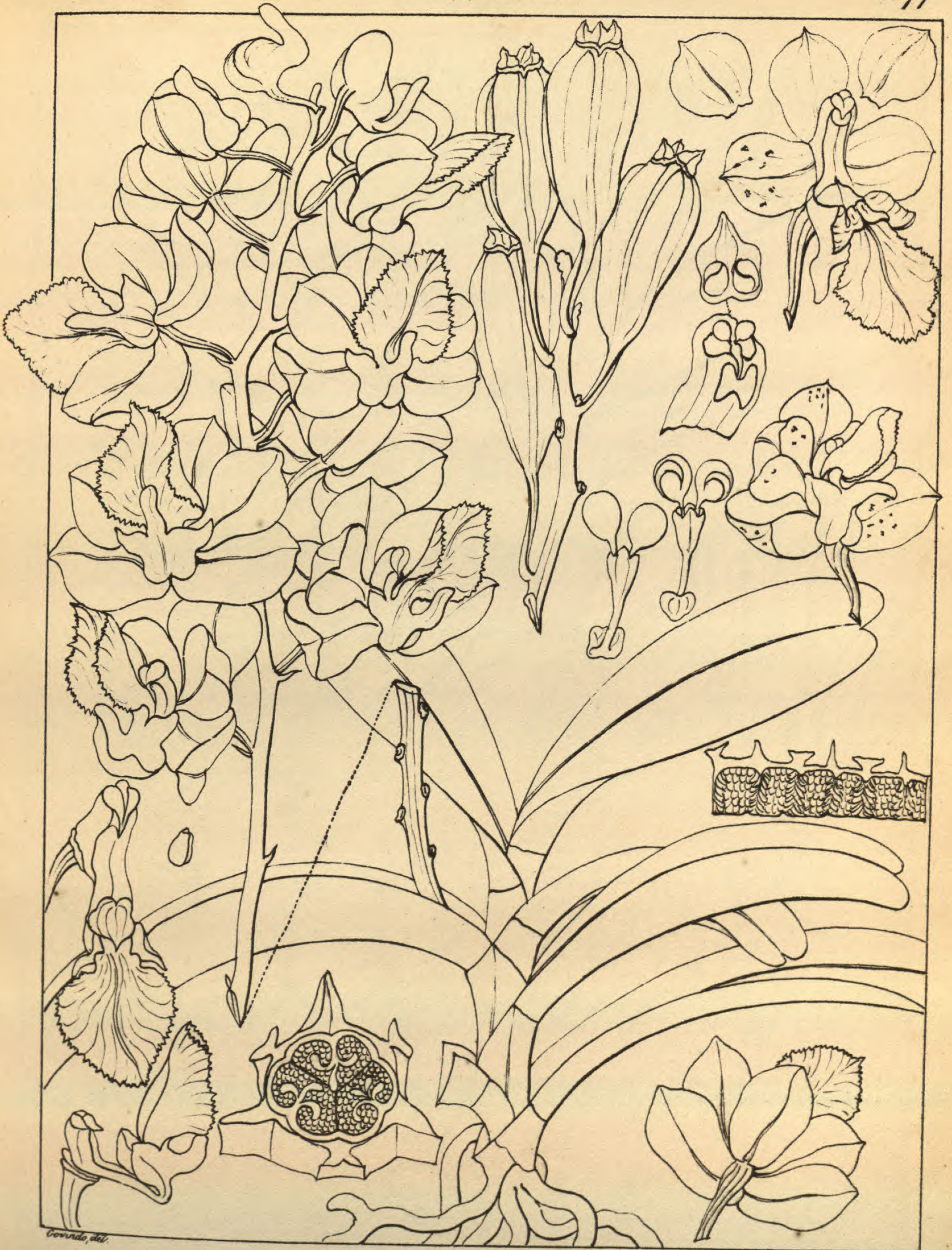
Saccolabium speciosum (R.W.)

Govindoo del. Dunphy, lith.



Govindoo, del. Dunphy, Lith

Saccolabium paniculatum (R.W.)



Govindo, del. Dumphy, Lith.

Aerides Lindleyana (R.W.)

Govindoo, del. Dumphy, lith.

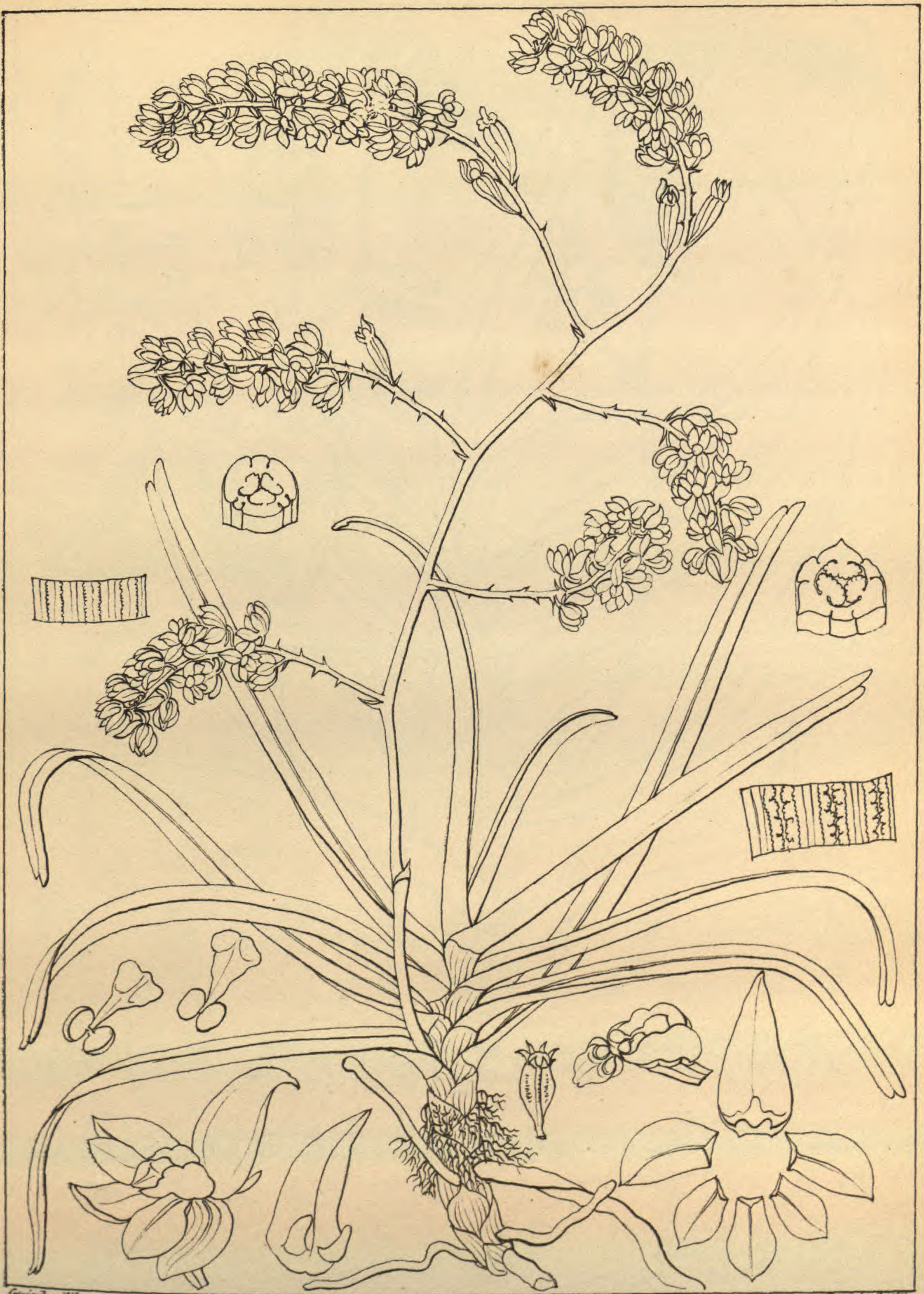
Aerides Lindleyana (R.W.)

Gavindoo, del. Dumphy, Lith.

Polystachya luteola (Hooker)

Govindoo, del. Dunphy, Lith.

Polystachya purpurea (R.W.)



Govindoo, del. Dunphy, Lith.

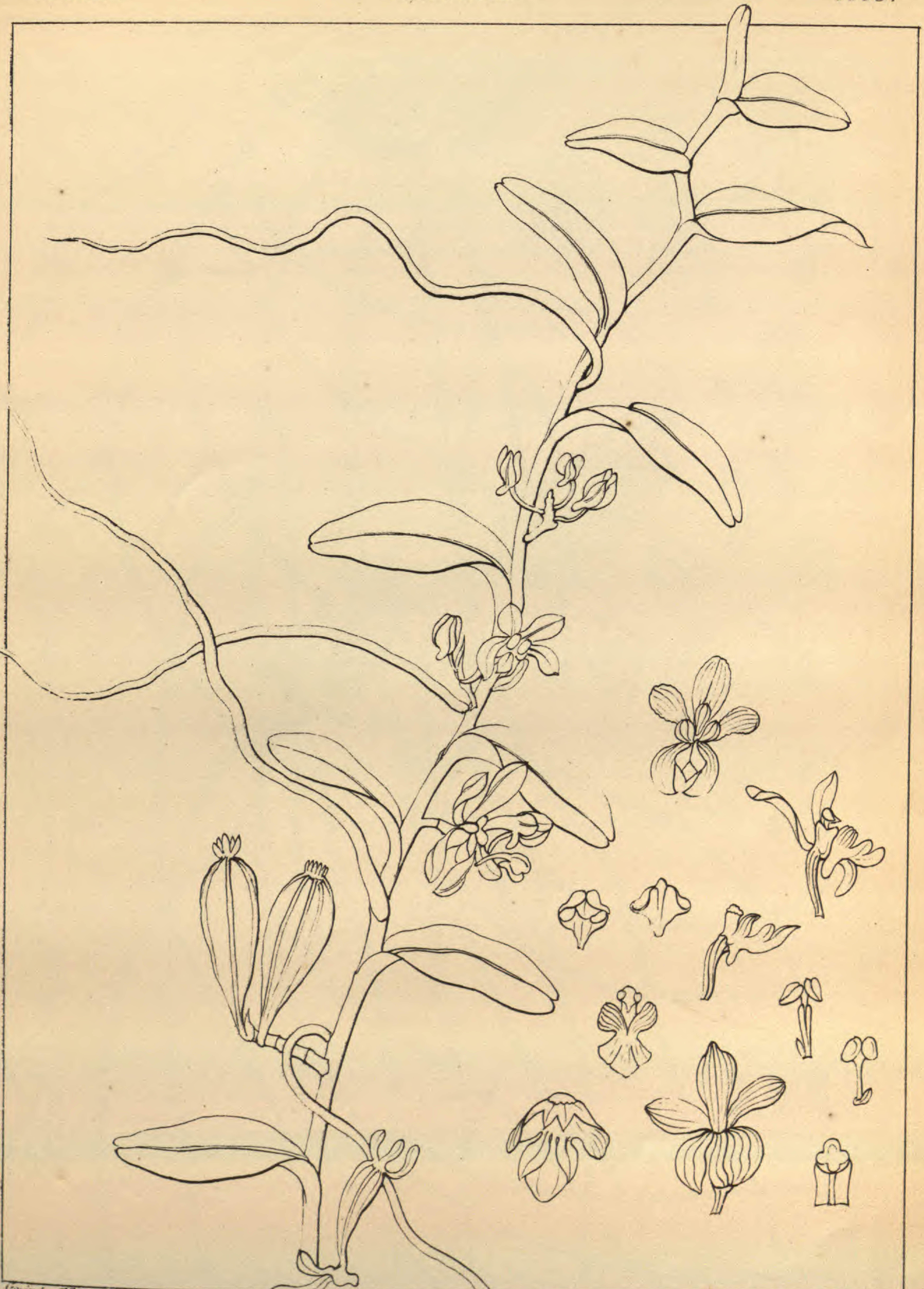
Diplocentrum recurvum (Lind)

Govindoo, del. Dumphy, Lith.

Diplocentrum longifolium (R.W.)

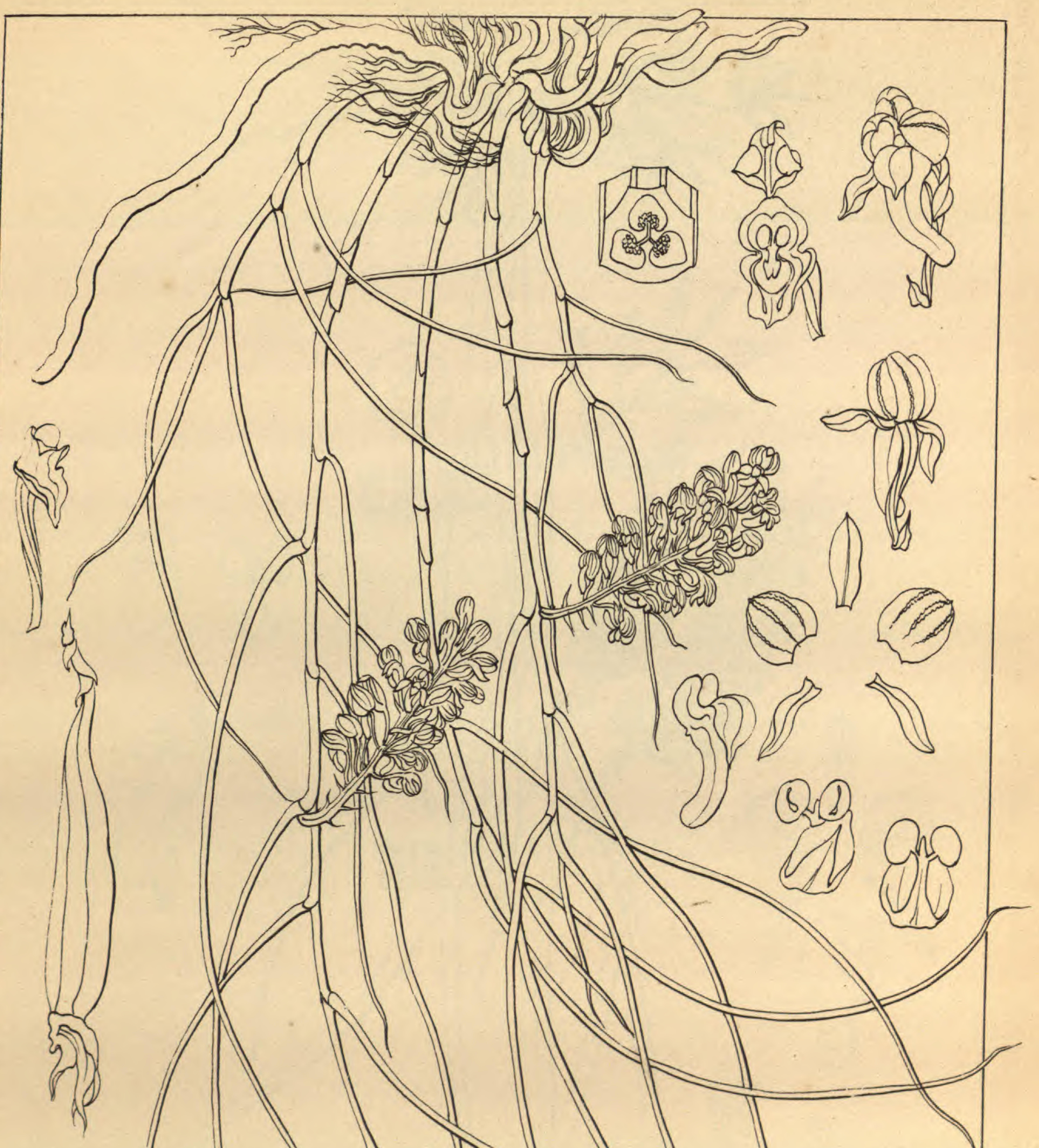
Govindoo, del. Dumphy, Lith.

Diplocentrum congestum (R.W.)



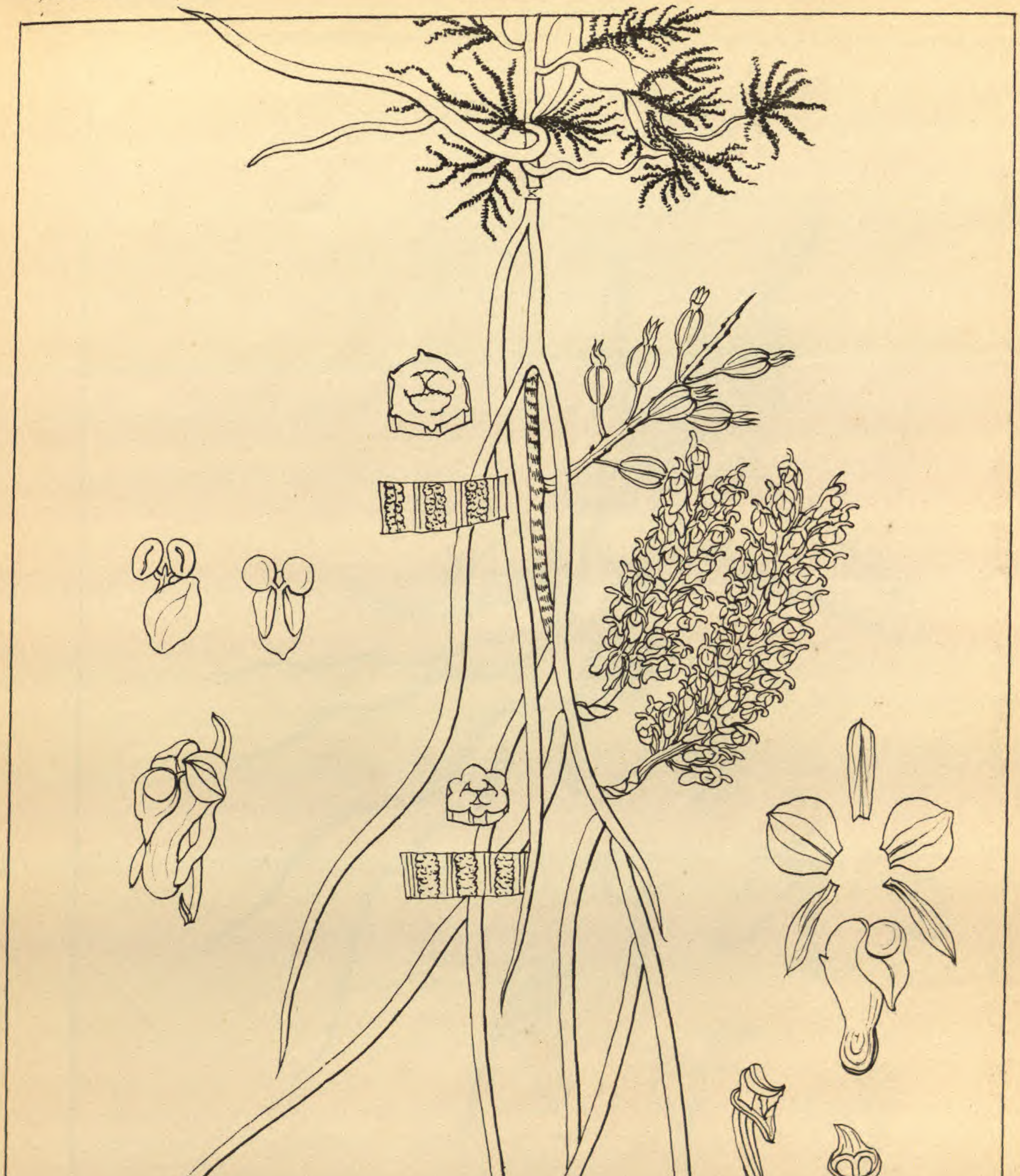
Govindoo, del. Dumphy, Lith.

Oeceoclades tener (Lind.)



Govindoo del. Dumphy, Lith.

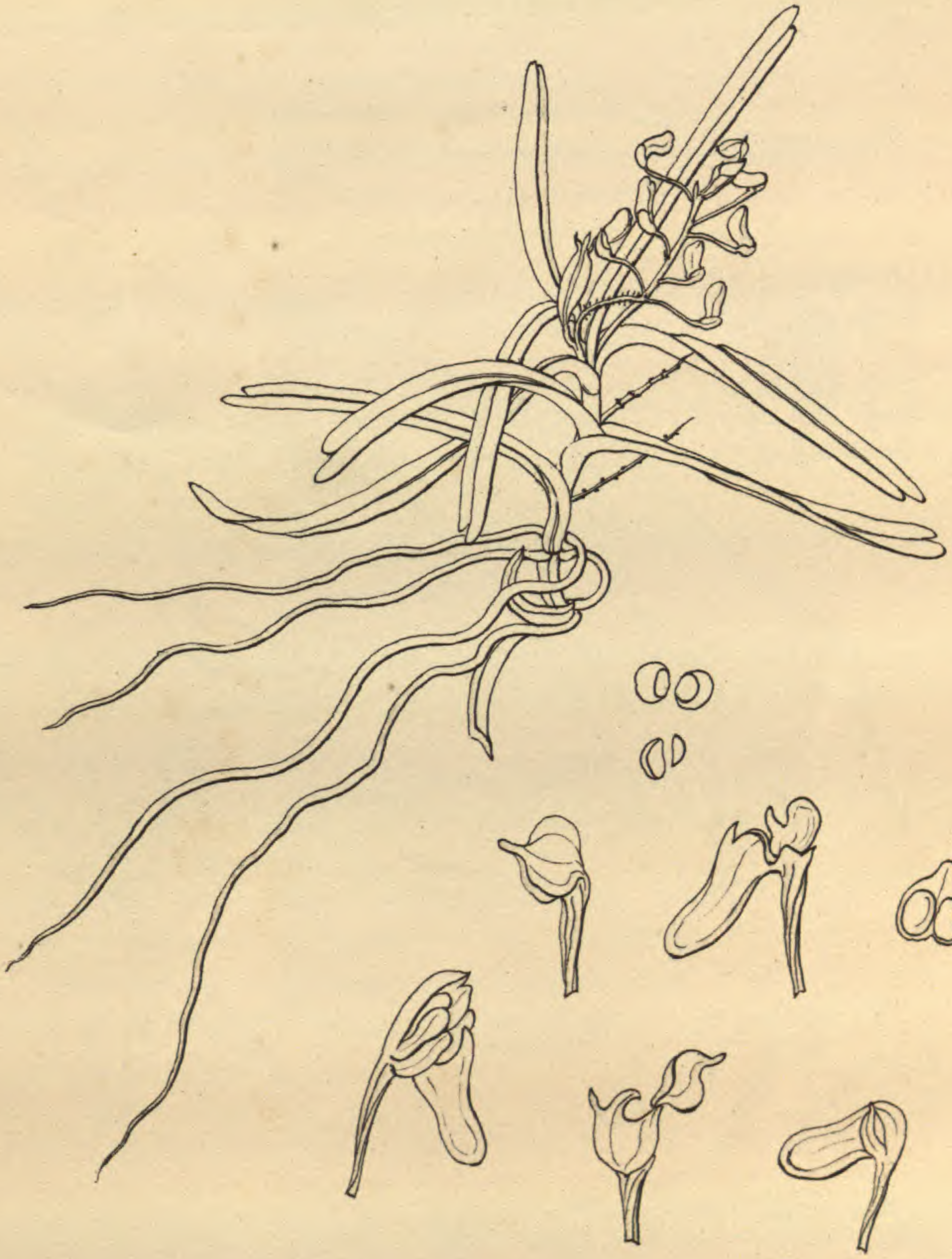
Sarcanthus filiformis (R.W.)



Govindoo, del.

Dumphy, Lith.

Sarcanthus roseus (R.W.)

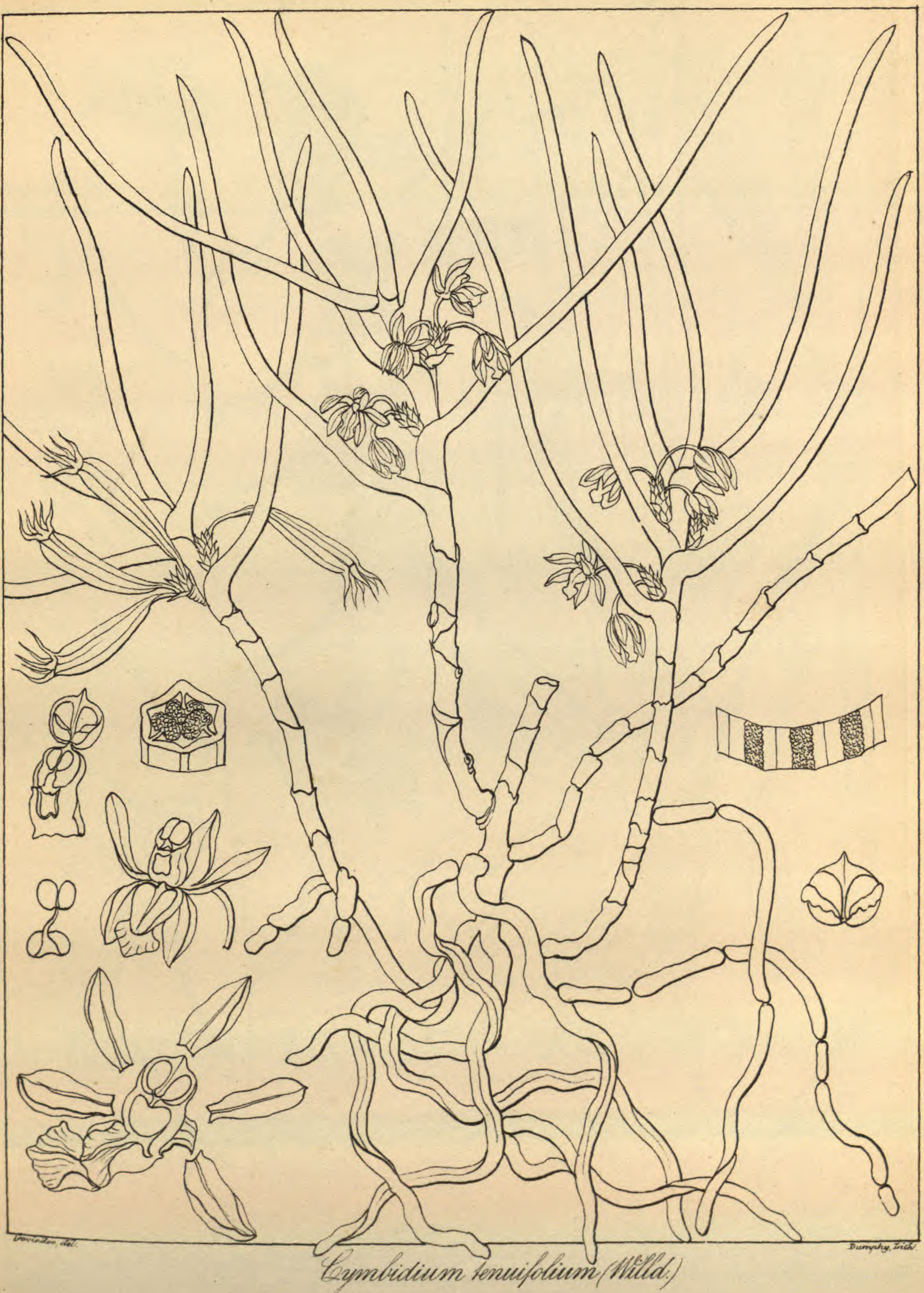


Govindoo, del. Dumphy, Lith.

Sarcanthus Walkerianus (R.W.)

Govindoo, del. Dumphy, Lith.

Cymbidium aloifolium (Swartz.)



Govindoo, del. Dumphy, Lith.

Cymbidium tenuifolium (Willd.)

Govindoo, del. Dumphy, Lith.

Cyrtopera fusca (R.W.)

Govindoo, del. Dunphy, lith.

Aceras angustifolia (Lind.)

Platanthera iantha (R.W.)

Govindoo, del. Dumphy, lith.

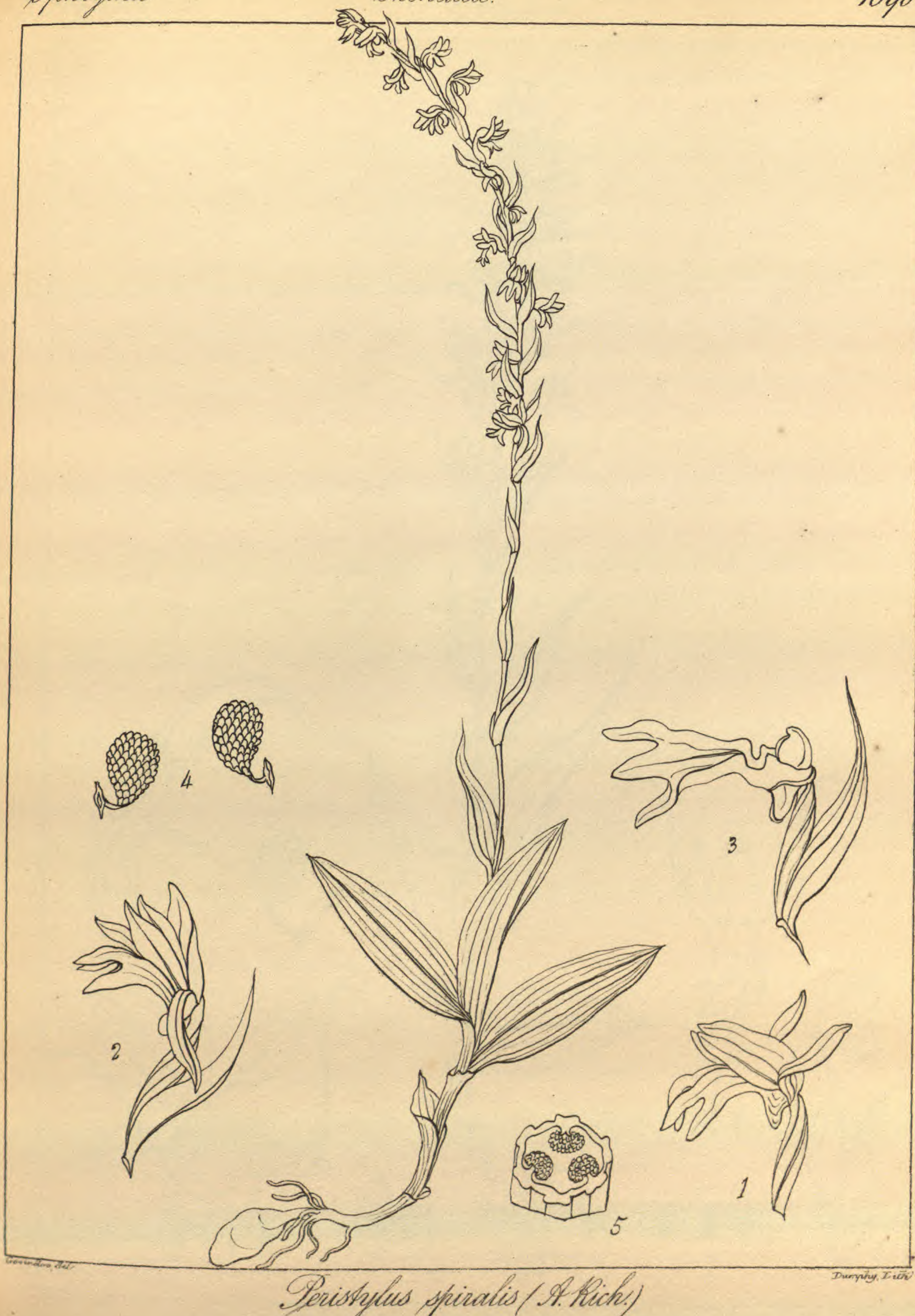
Platanthera affinis (R. W.)

Govindoo, del. Dumphy, lith.

Platanthera brachyphylla (Lind.)

Govindoo, del. Dunphy, Lith.

Peristylus Lawii (R.W.)



Dunphy, Lith.

Peristylus spiralis (A. Rich.)

Govindoo, del. Dunphy, Lith.

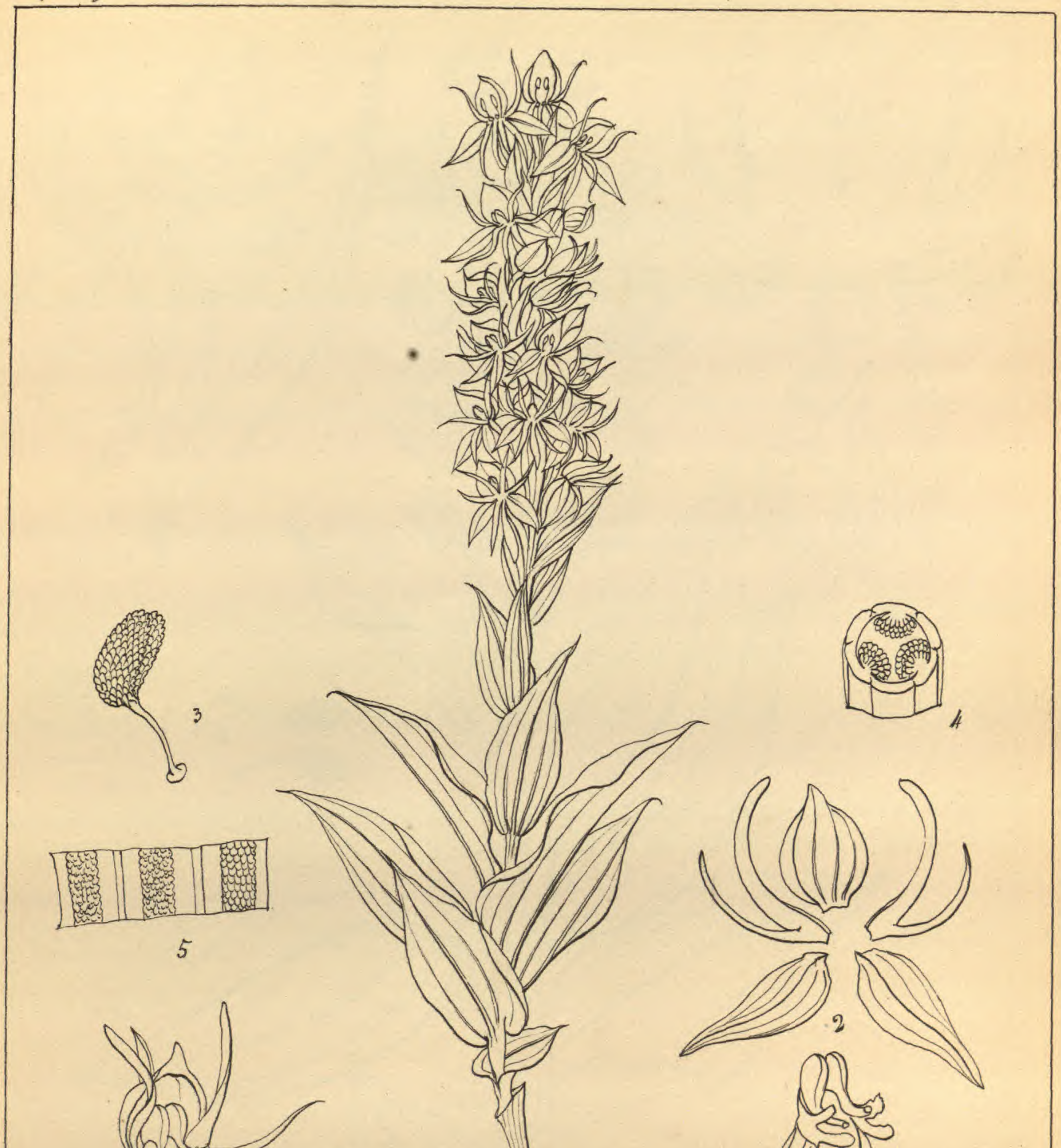
Peristylus Richardianus (R.W.)

Govindoo, del. Dumphy, Lith.

Peristylus exilis (R.W.)

Govindoo, del. Dumphy, lith.

Peristylus robustior (R.W.)

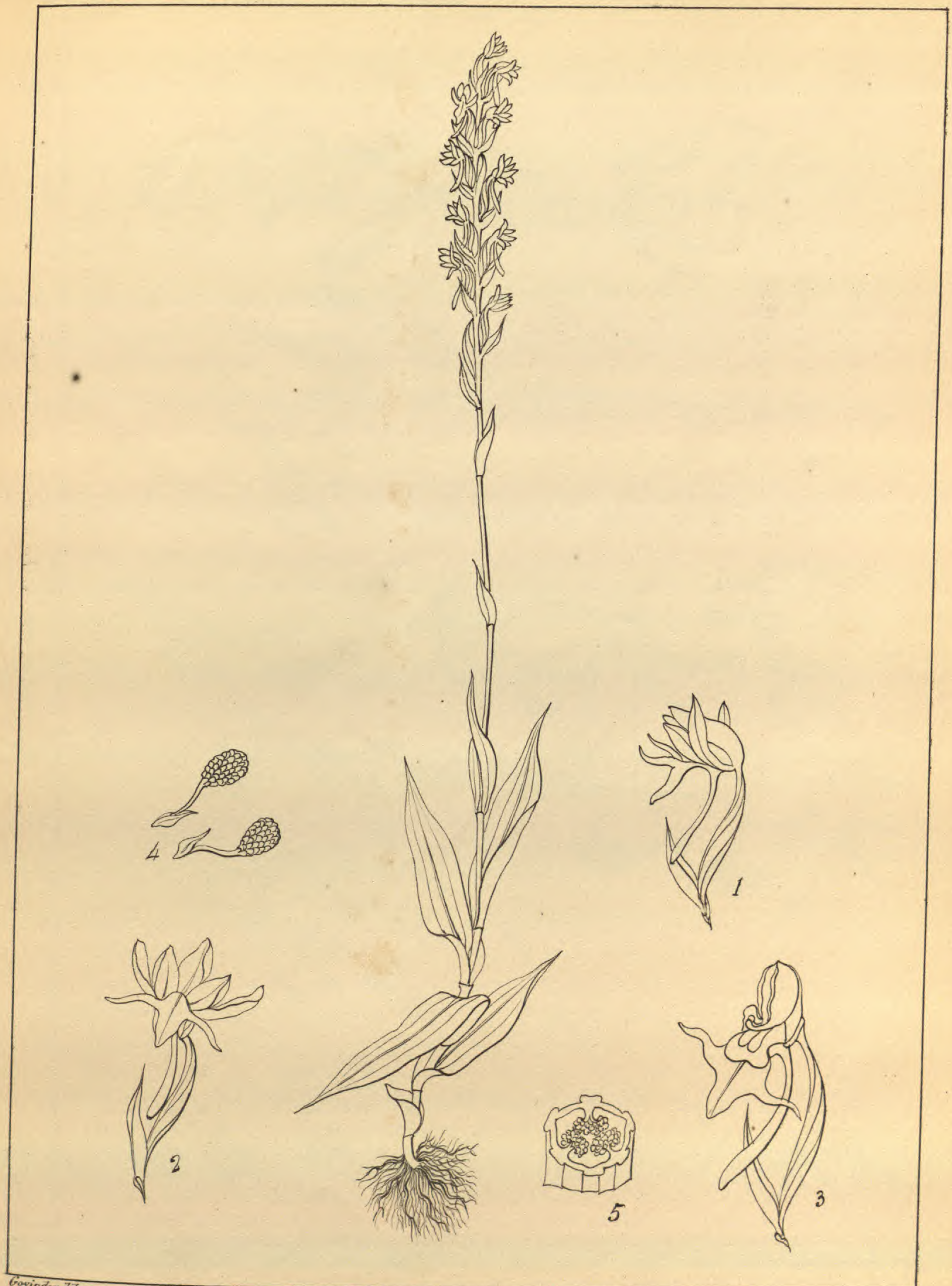


Govindoo, del. Dunphy, lith.

Haberiaria foliosa (Rich.)

Govindoo, del. Dunphy, Lith.

Habenaria trinervia (R.W.)



Govindoo, del.

Dumphy, Lith.

Habenaria peristyloides (R.W.)

Habenaria Heyneana (Lindl.)

Gowindoo, del. Dunphy, lith.

Habenaria viridiflora (R. Br.)

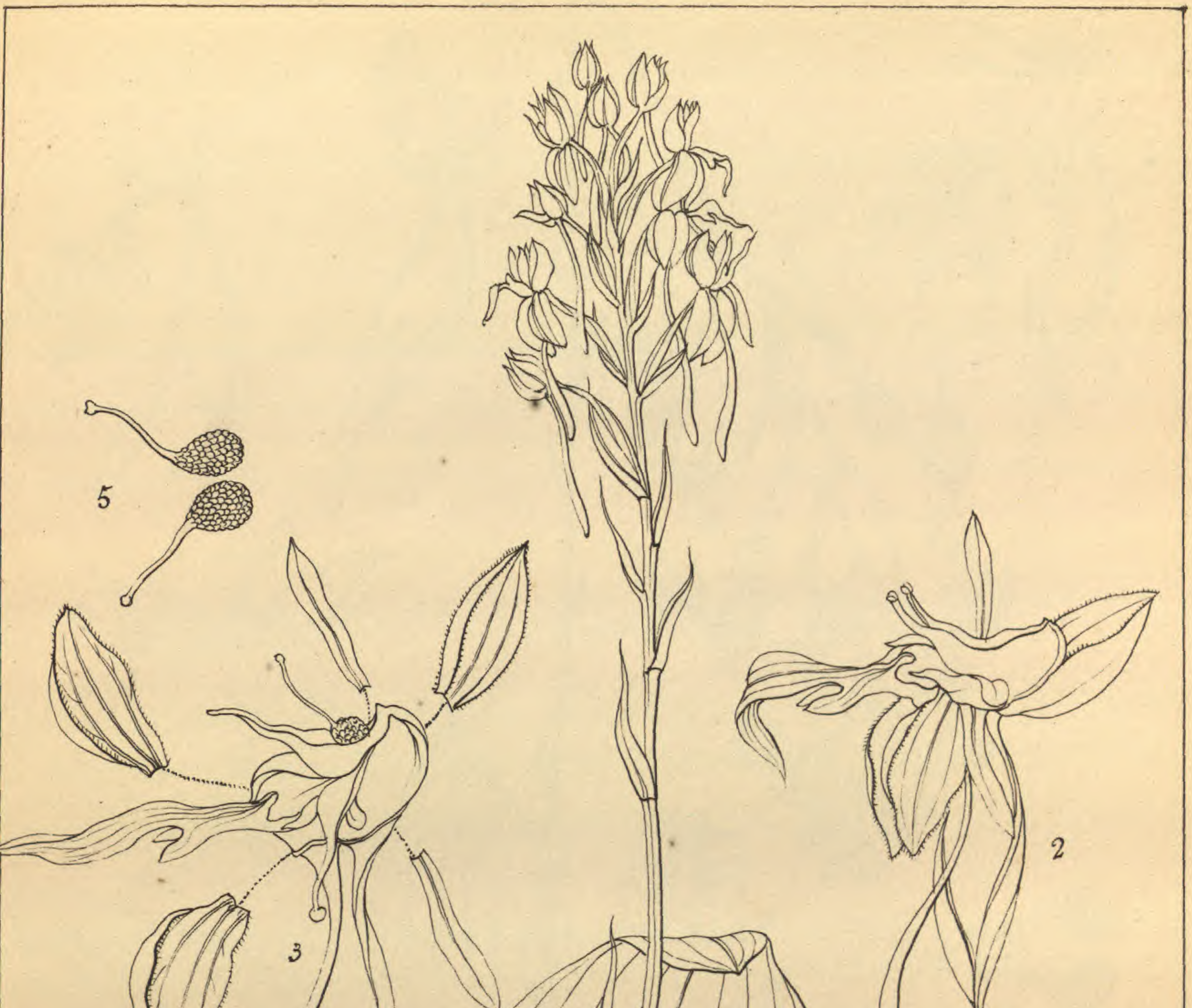
Govindoo, del. Dunphy, Lith.

Habenaria elliptica (R. W.)

Govindoo, del. Dumphy, Lith.

Habenaria affinis (R.W.)

Habenaria ovalifolia (R.W.)



Govindoo, del. Dunphy, Lith.

Habenaria platyphylla (Spring.)

Govindoo, del. Dunphy, Lith.

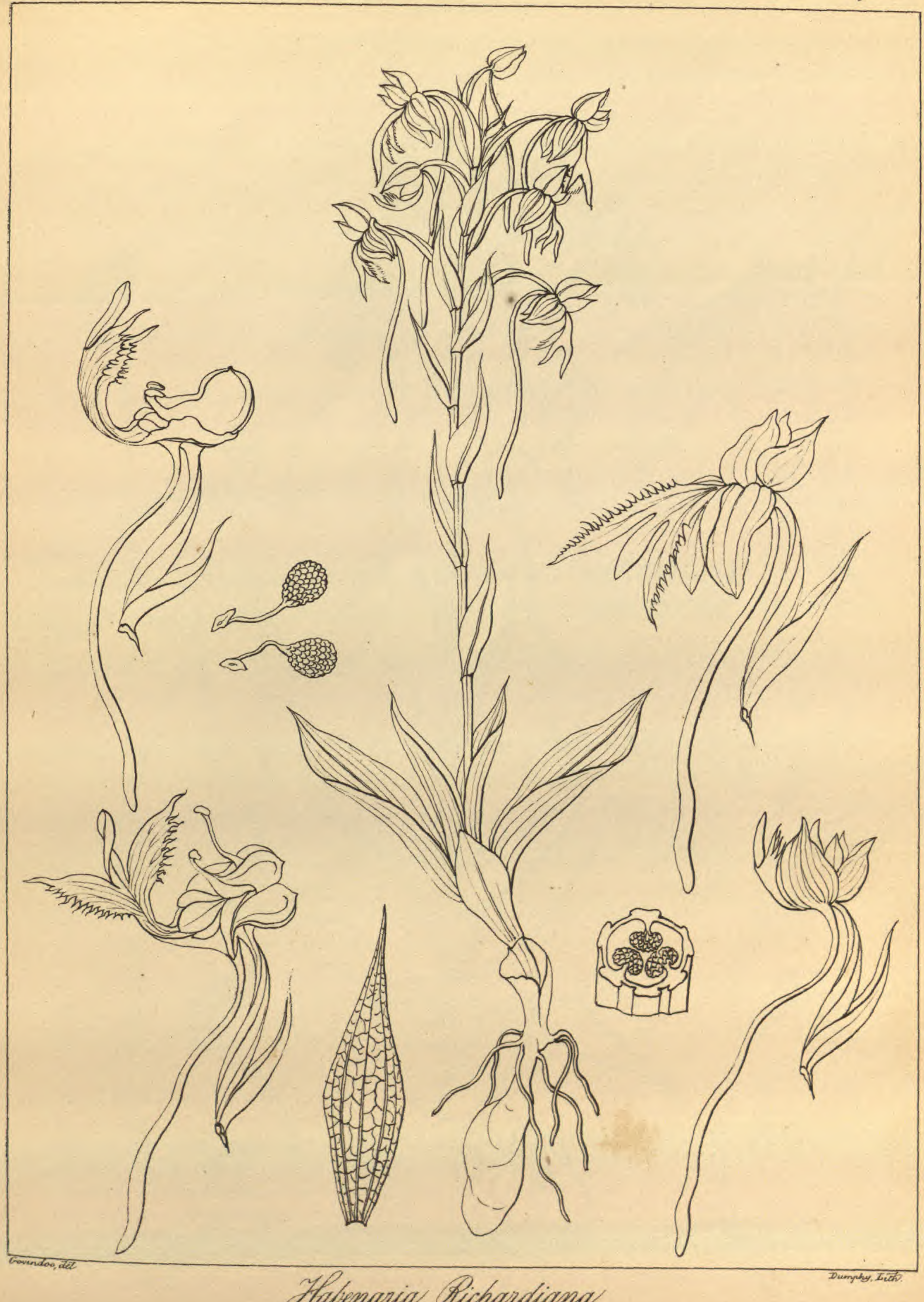
Habenaria plantaginea (Lind.)

Govindoo, del. Dunphy, Lith.

Habenaria cephalotes (Lind)

Govindoo, del. Dunphy, lith.

Habenaria fimbriata (R.W.)



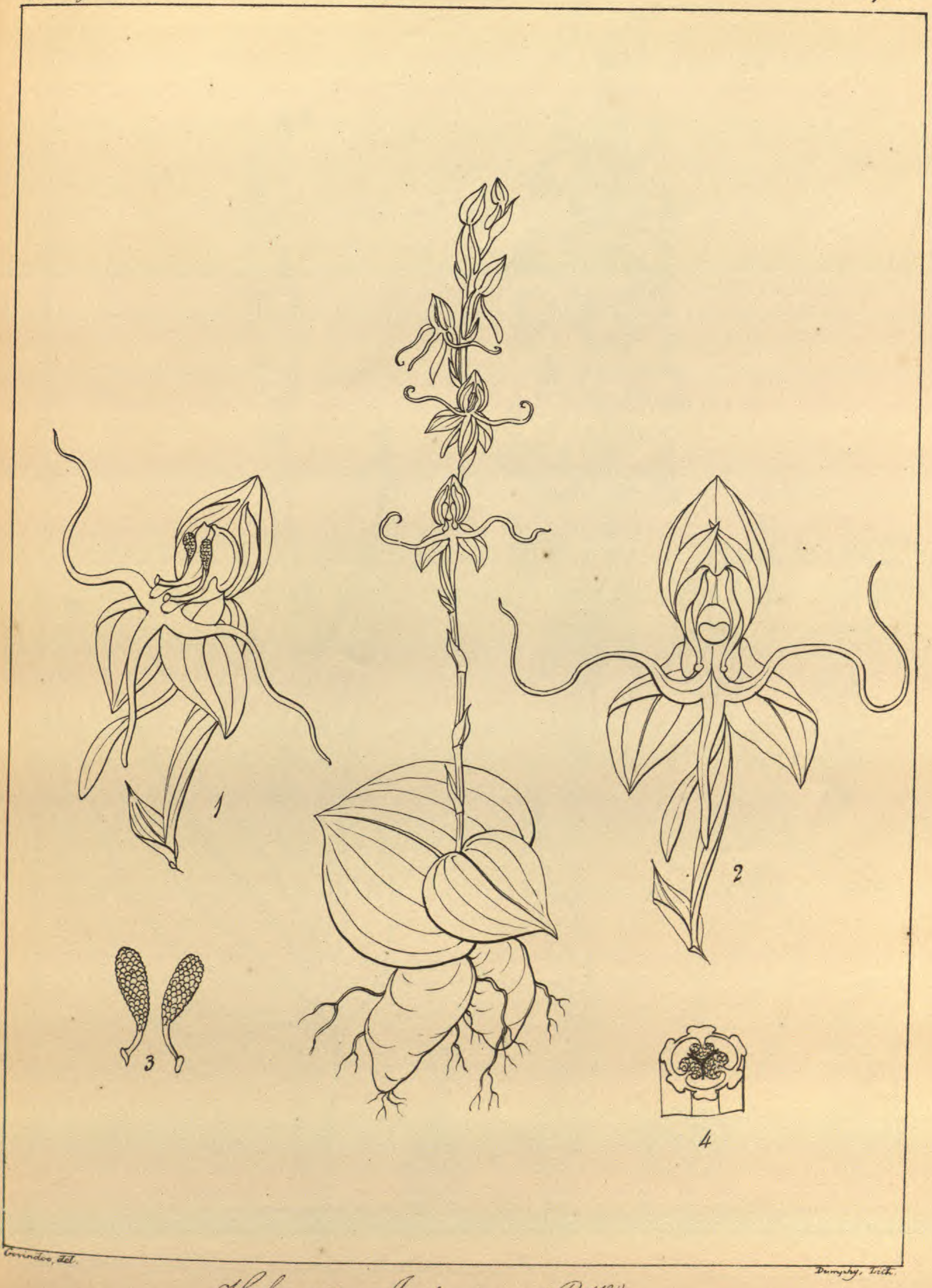
Govindoo, del.

Dumphy, Lith.

Habenaria Richardiana

Govindoo, del. Dunphy, lith.

Habenaria montana (Richd.)

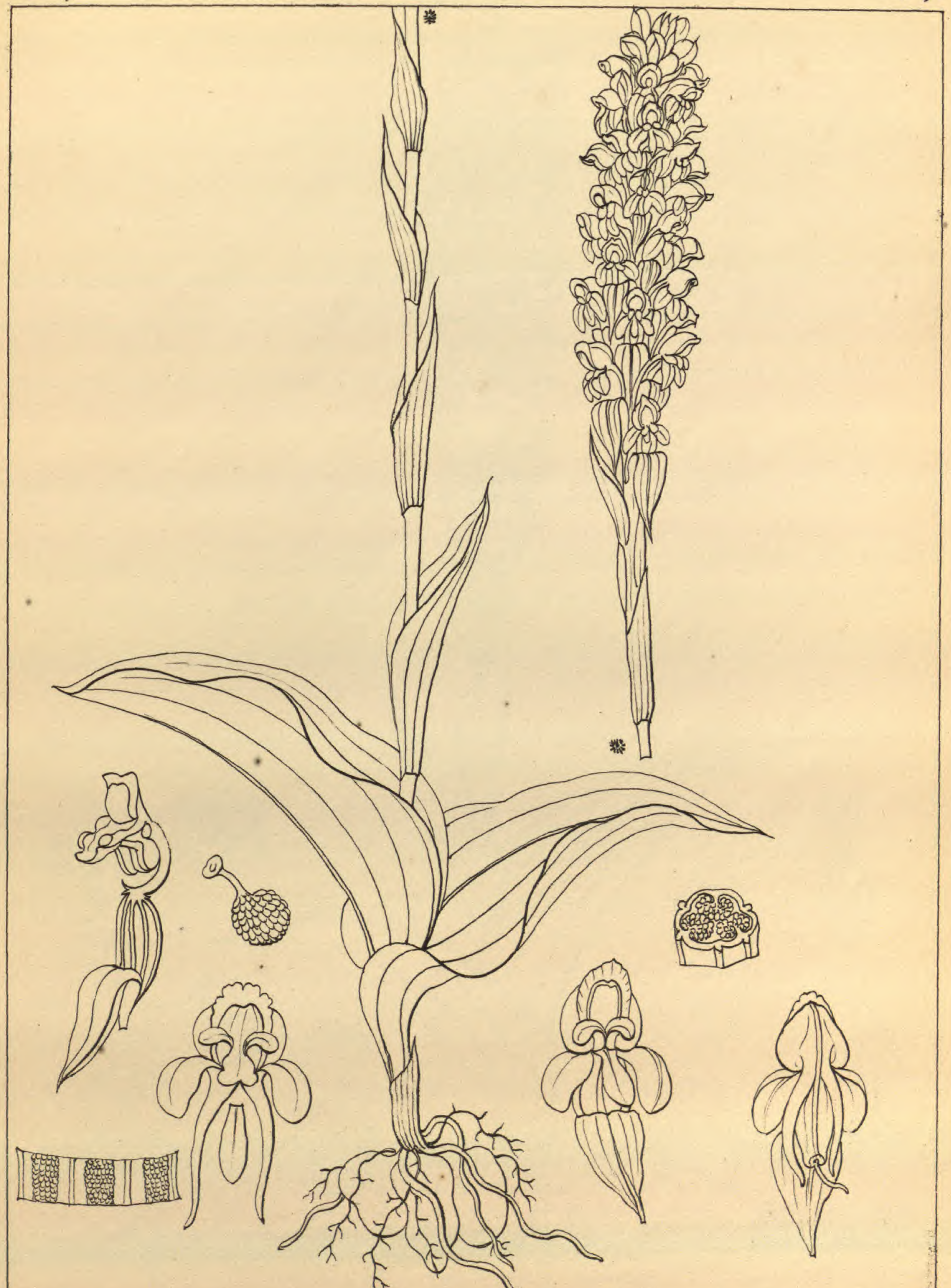


Govindoo, del. Dumphy, Lith.

Habenaria Jerdoniana (R.W.)

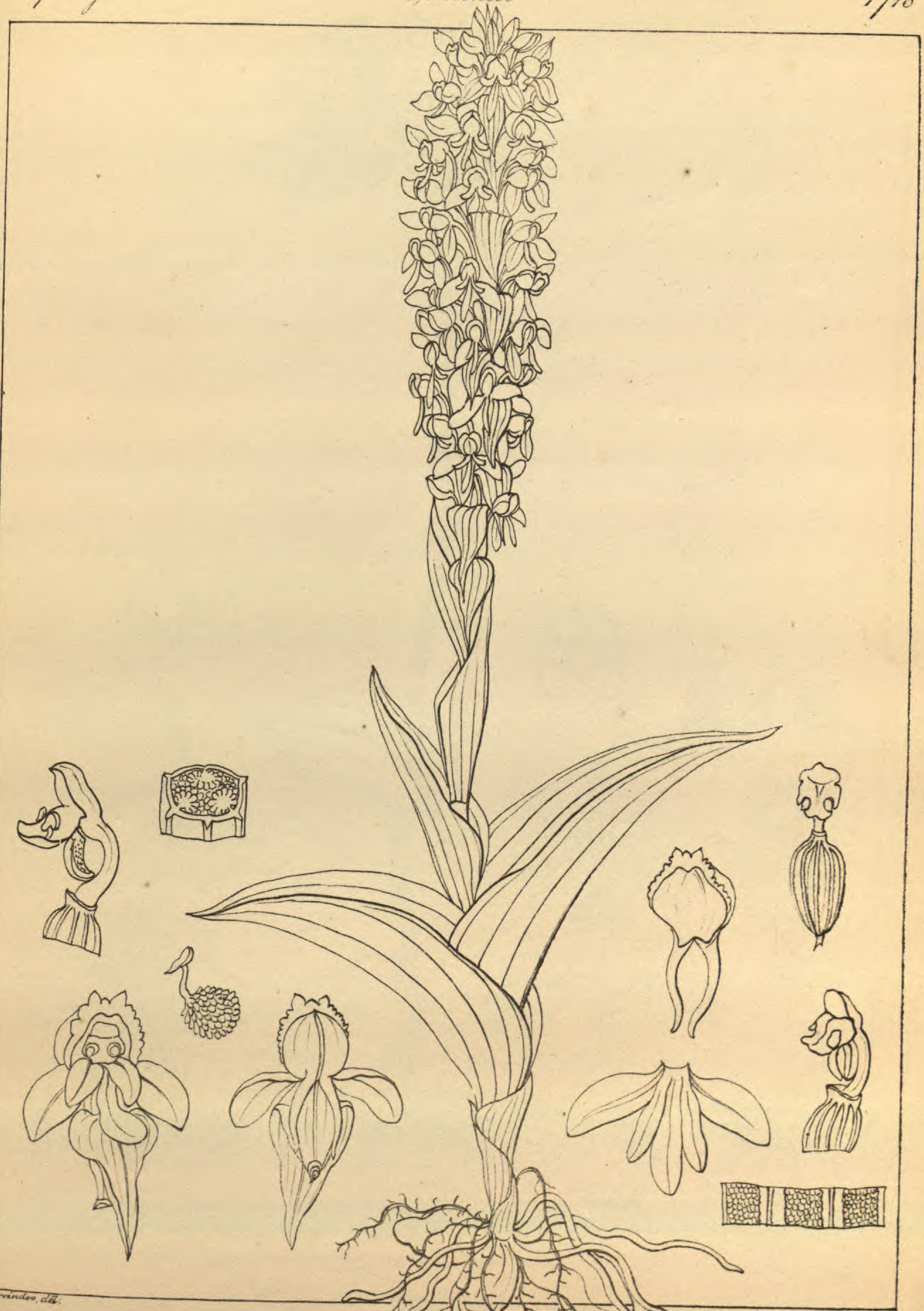
Govindoo, del. Dumphy, Lith.

Satyrium Perrottetianum (Rich^d.)



Govindoo, del. Dumphy, Lith.

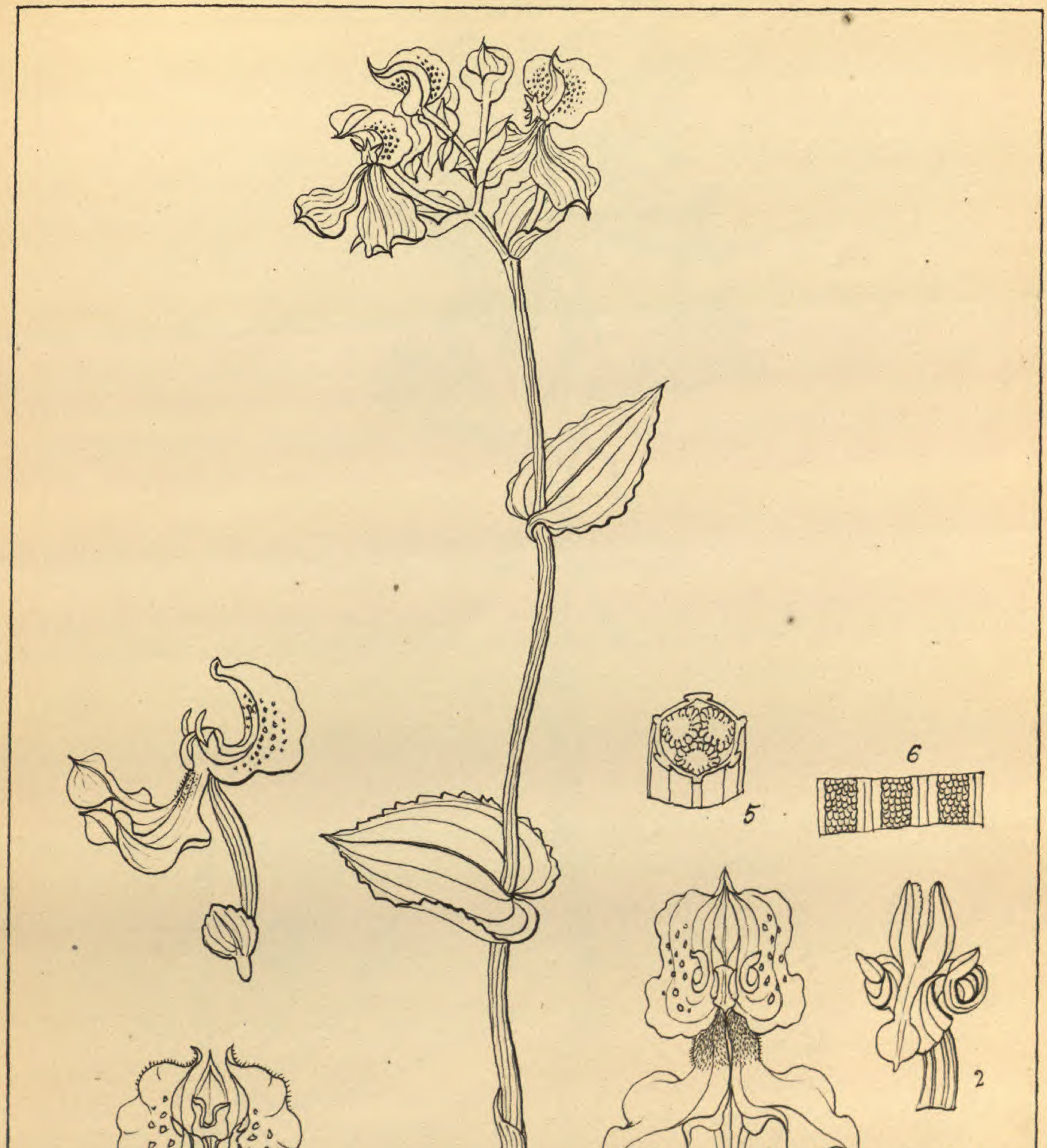
Satyrium albiflorum (Rich.d)



Govindoo, del.

Dumphy, Lith.

Satyrium Wightianum (Lind)



Govindoo, del. Dumphy, Lith.

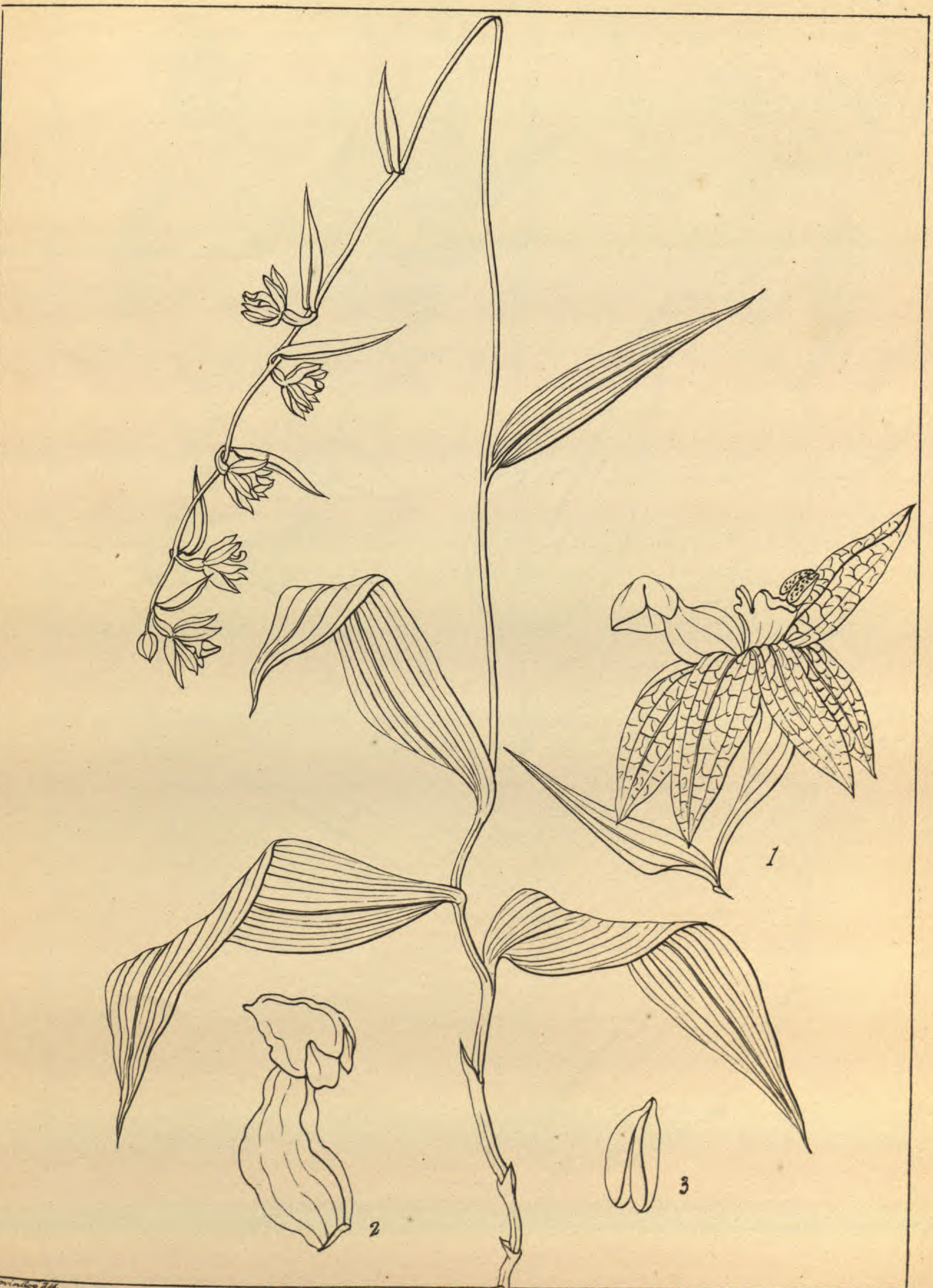
Diperis Neilgherrensis

Govindoo, del. Dumphy, Lith.

Pogonia carinata (Lind.)

Govindoo, del. Dumphy, lith.

Cephalanthera acuminata (Lind)



Govindoo, del. Dunphy, Lith.

Epipactis macrostachya (Lind.)

Govindoo, del. Dumphy, Lith.

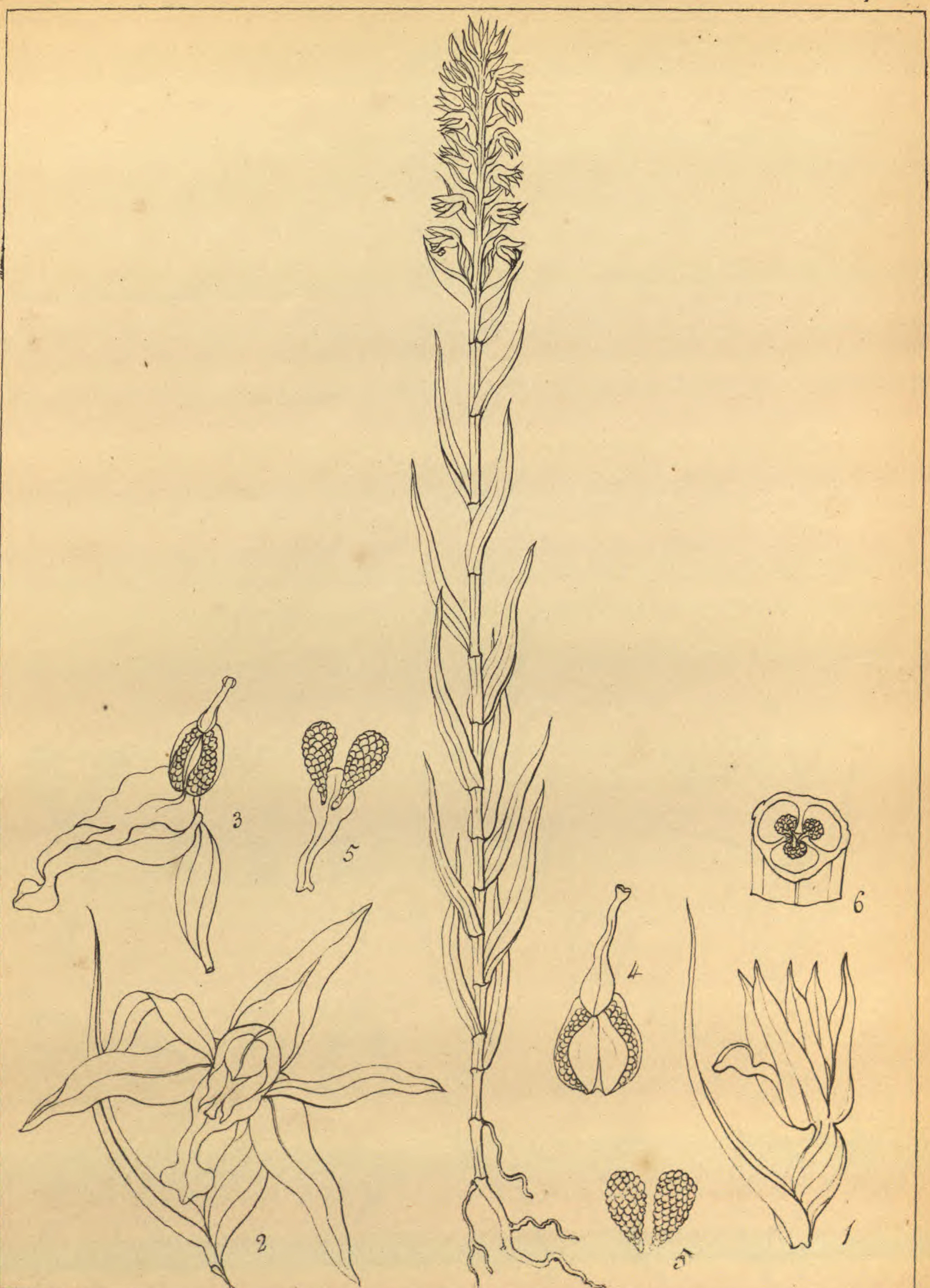
Epipactis Dalhousiæ (R.W.)

Govindoo, del. Dunphy, lith.

Spiranthes australis (Lind.)

Govindoo, del. Dunphy, lith.

Zeuxine bracteata (R.W.)

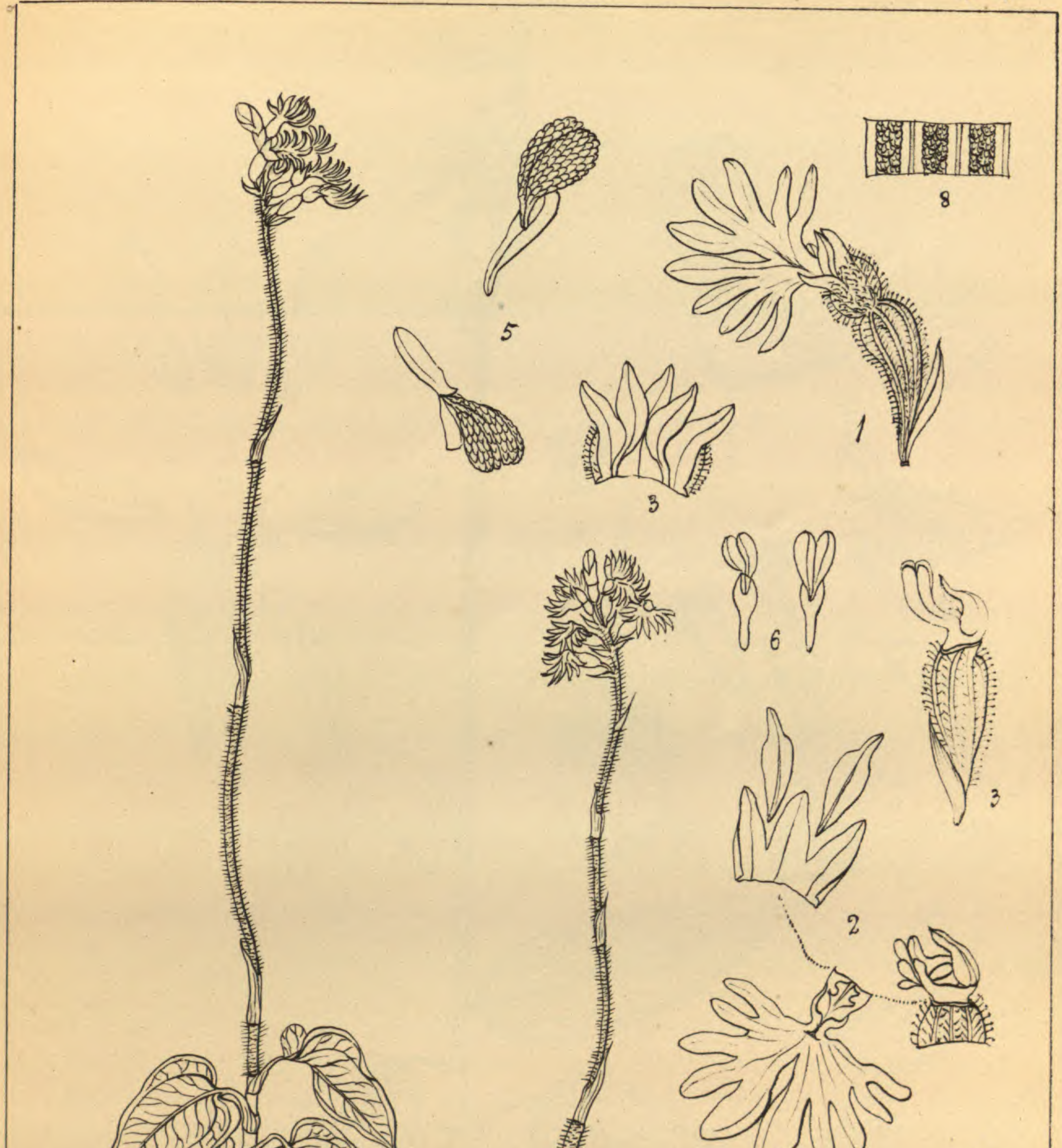


Govindoo, del. Dumphy, Lith.

Zeuxine brevifolia (R.W.)

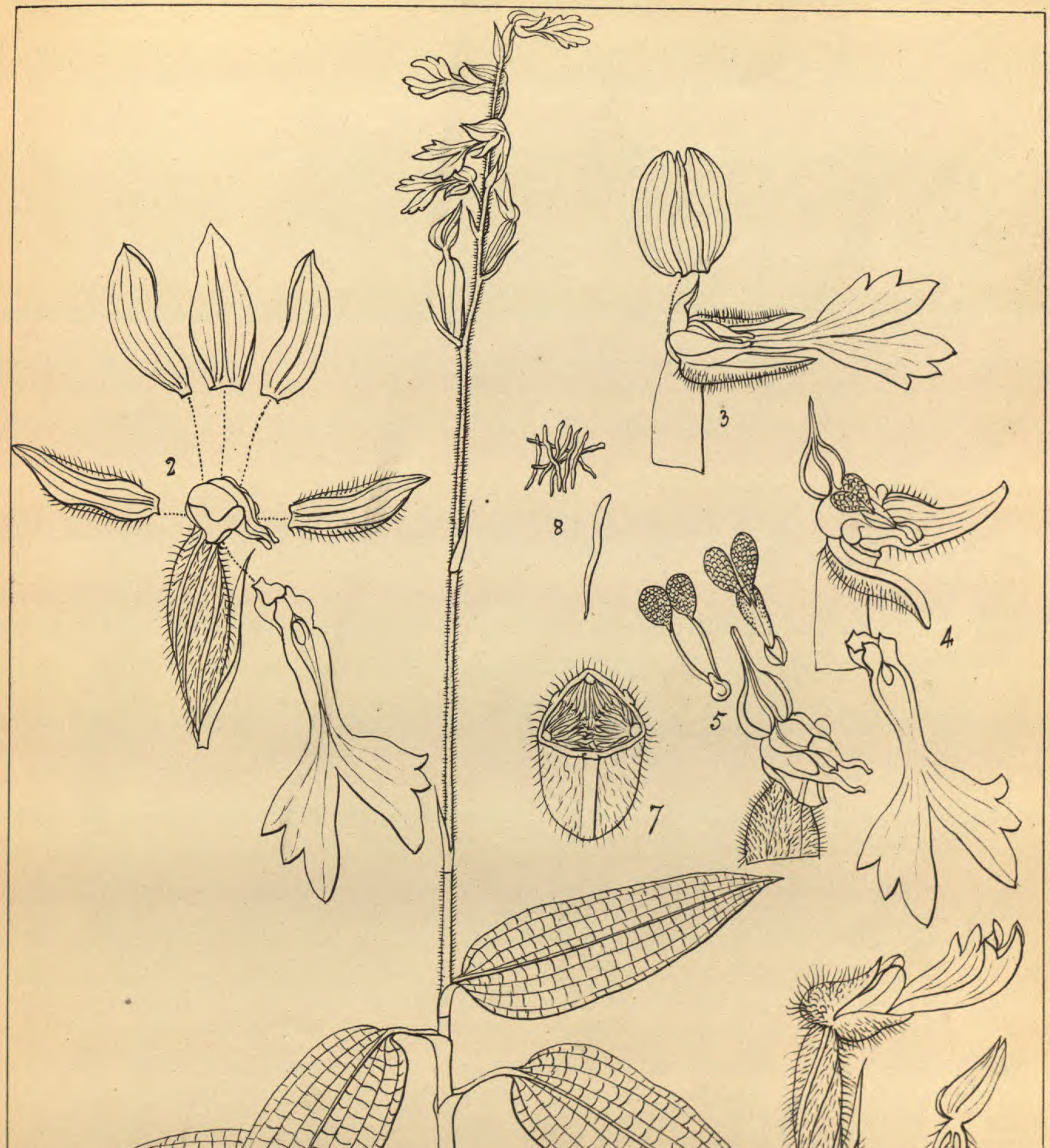
Govindoo, del. Dumphy, Lith.

Zeuxine robusta (R.W.)



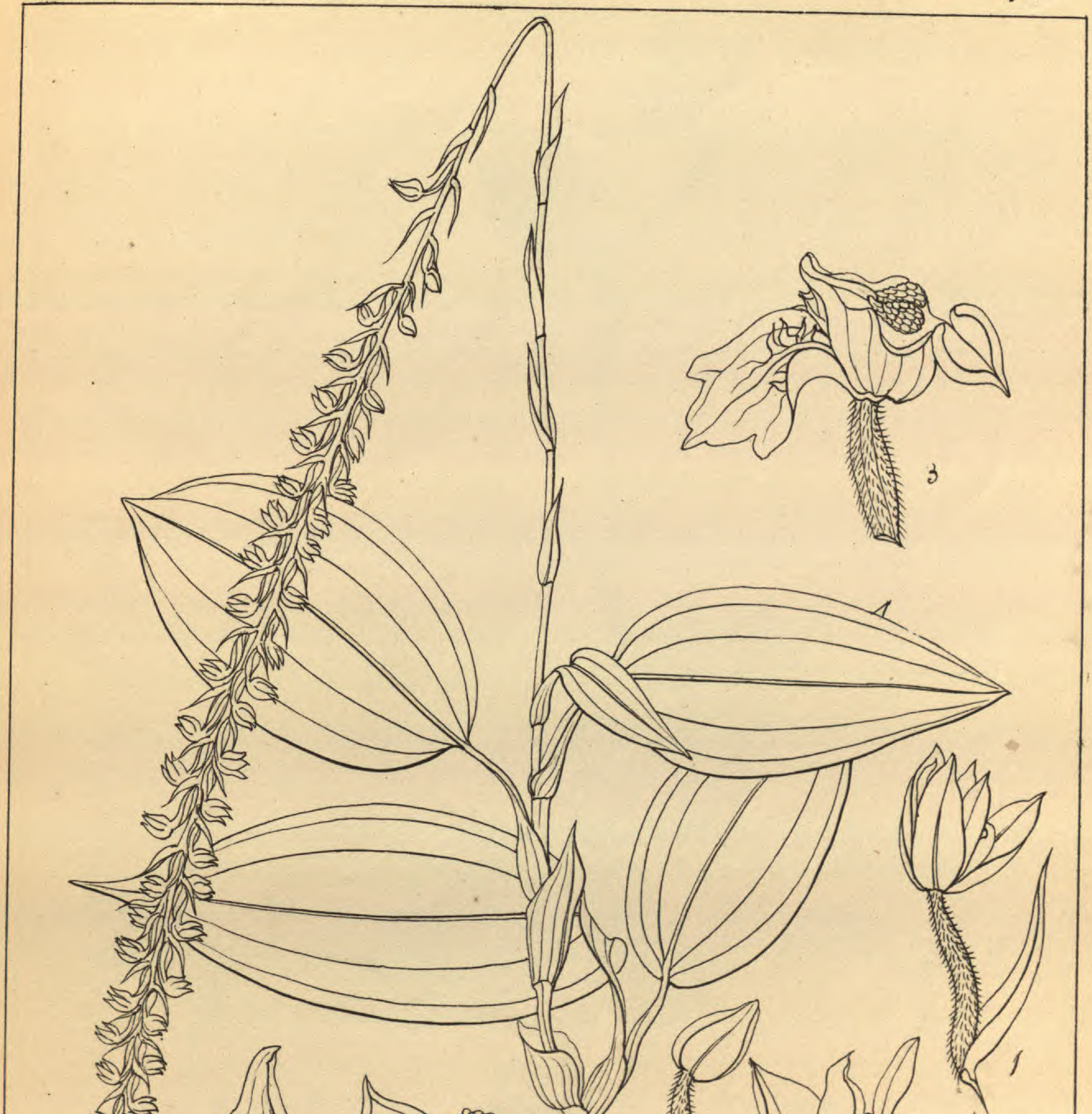
Govindoo, del. Dumphy, Lith.

Monochilus flabellatum (R.W.)



Monochilus affine (Lind)

Goodyera procera (Hooker)



Govindoo, del. Dunphy, Lith.

Goodyera ovaliofolia (R.W.)

Anœctochilus setaceus (Blume)

Govindoo, del. Dumphy, Lith.

Euphroboscis pigmæa (Griff.)

Govindoo, del. Dunphy, Lith.

Mycaranthes stricta (Lind)

Govindoo, del. Dumphy, lith.

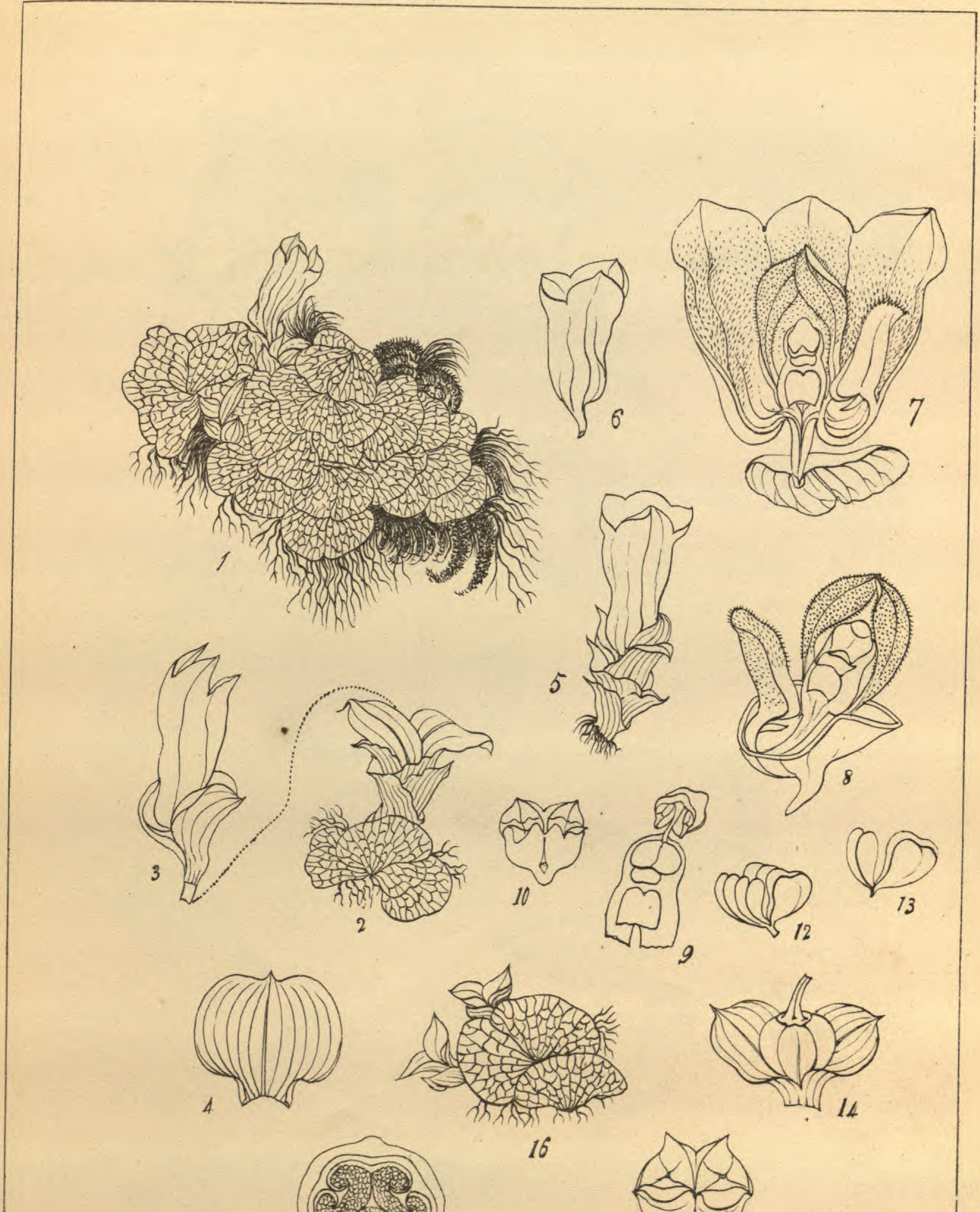
Phreatia uniflora (R.W.)

Liparis elliptica (R.W.)

Govindoo del.

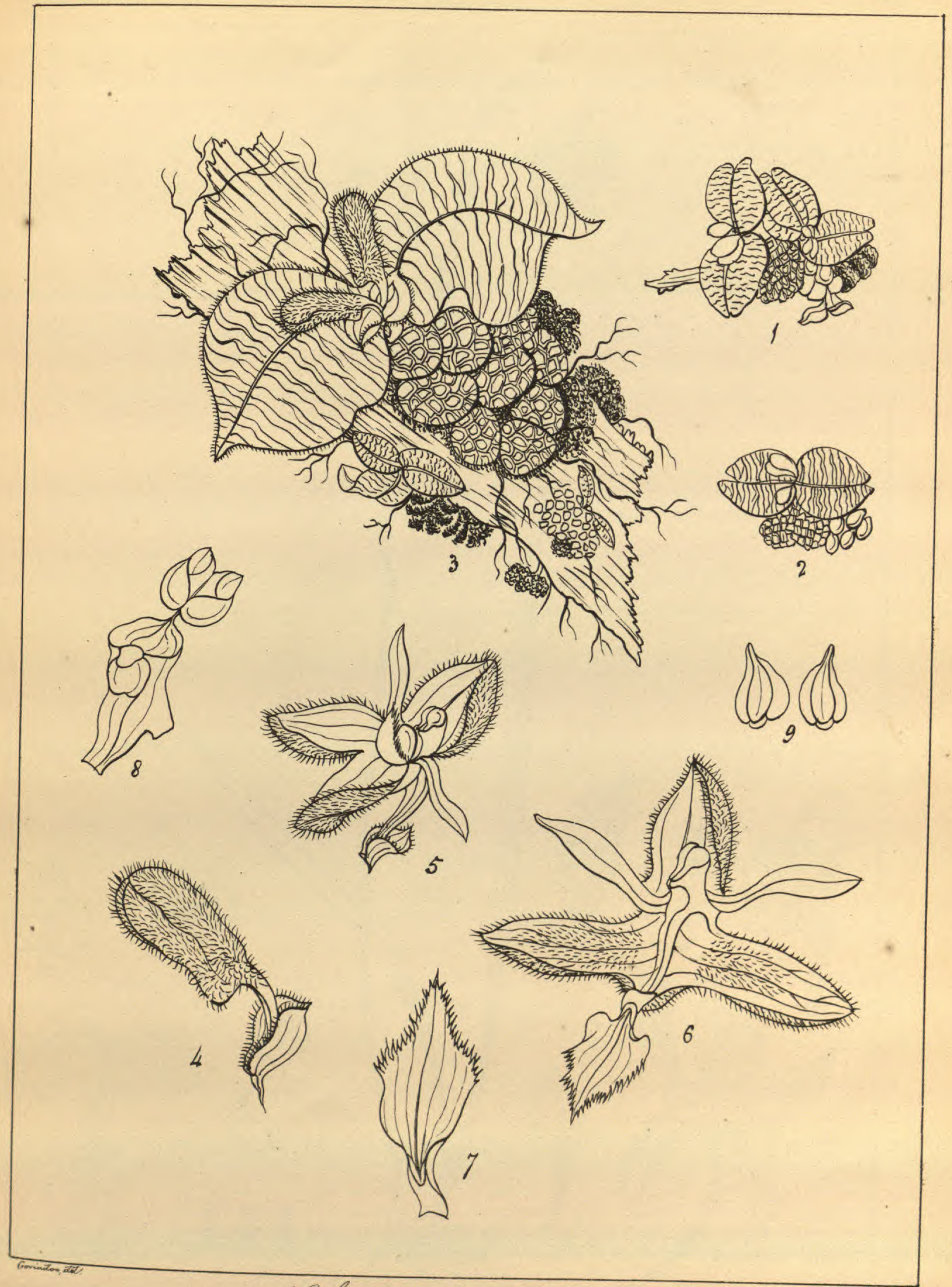
Dumphy, Lith.

Oxysepala ovalifolia (R.W.)



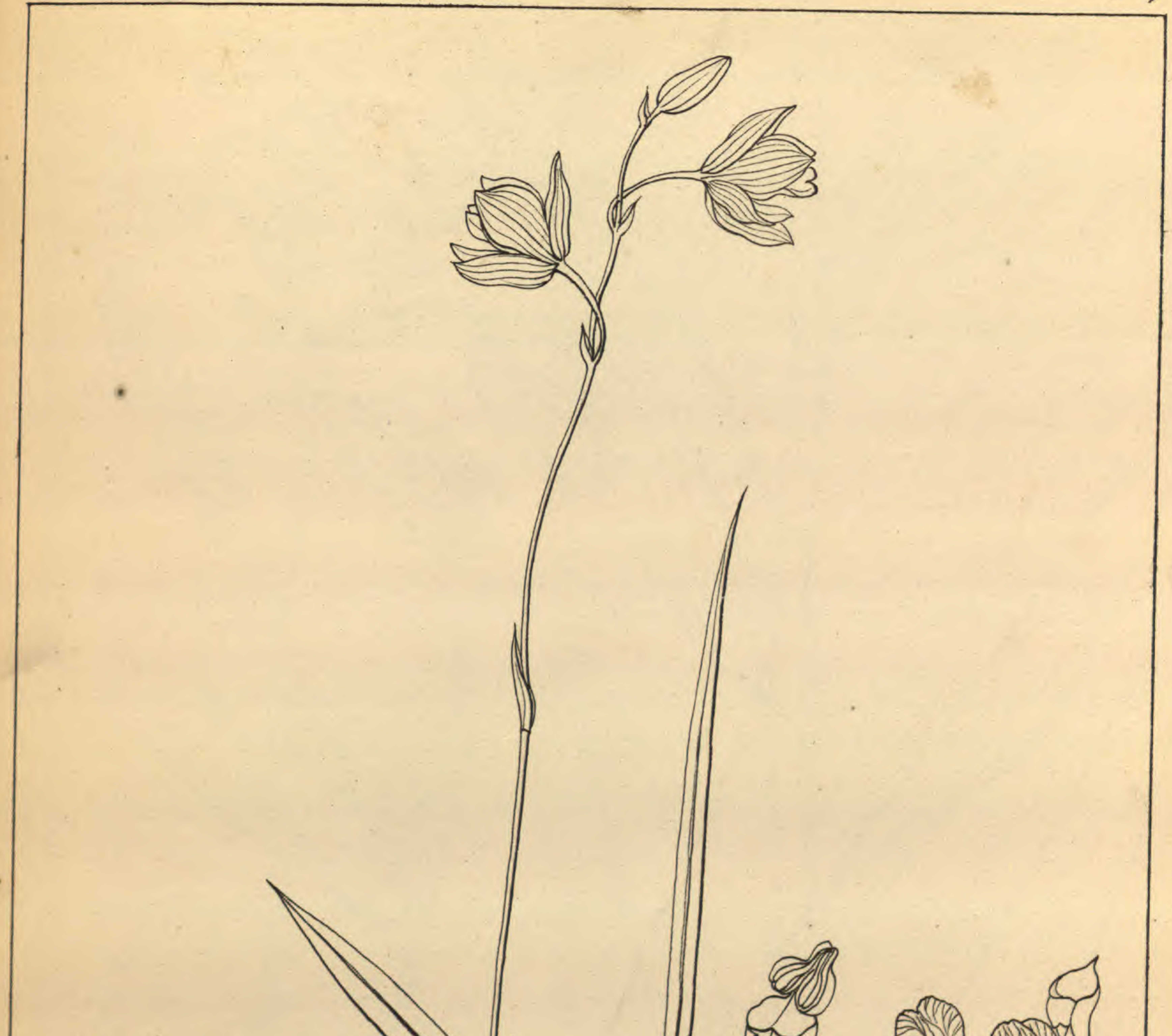
Govindoo, del. Dumphy, Lith.

Aggeianthus marchantioides (R.W.)



Govindoo, del. Dumphy, Lith.

Lichenora Jerdoniona (R.W.)



Govindoo, del. Dumphy, lith.

Spathoglottis pubescens (Lind.)

Bromheadea palustris? (Lind.)

Govindoo, del.

Dunphy, Lith.

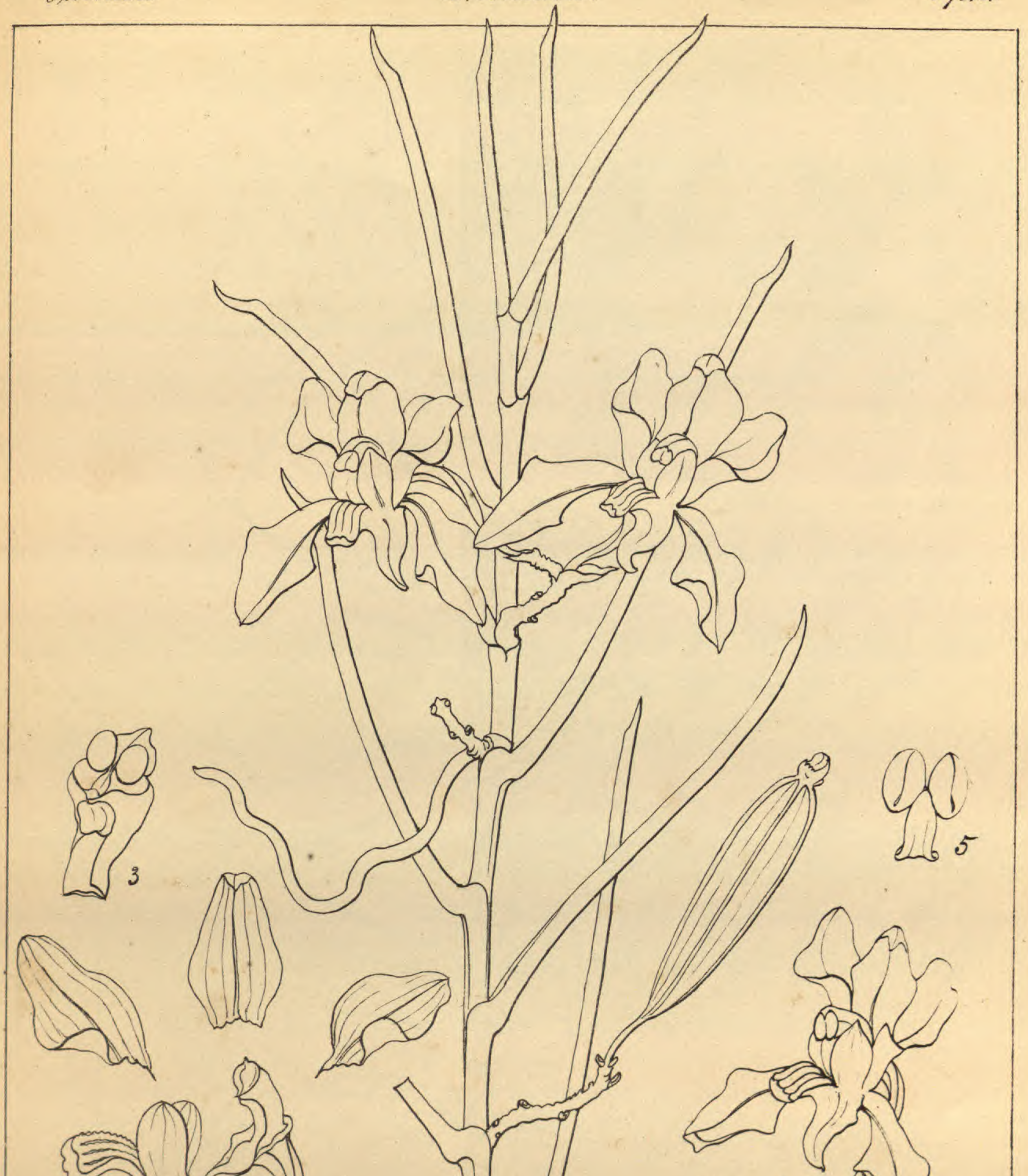
Chilochista usneoides (Lind.)

Govindoo, del. Dumphy, Lith.

Josephia lanciolata (R. W.)

Govindoo, del. Dunphy, Lith.

Josephia latifolia (R.W.)

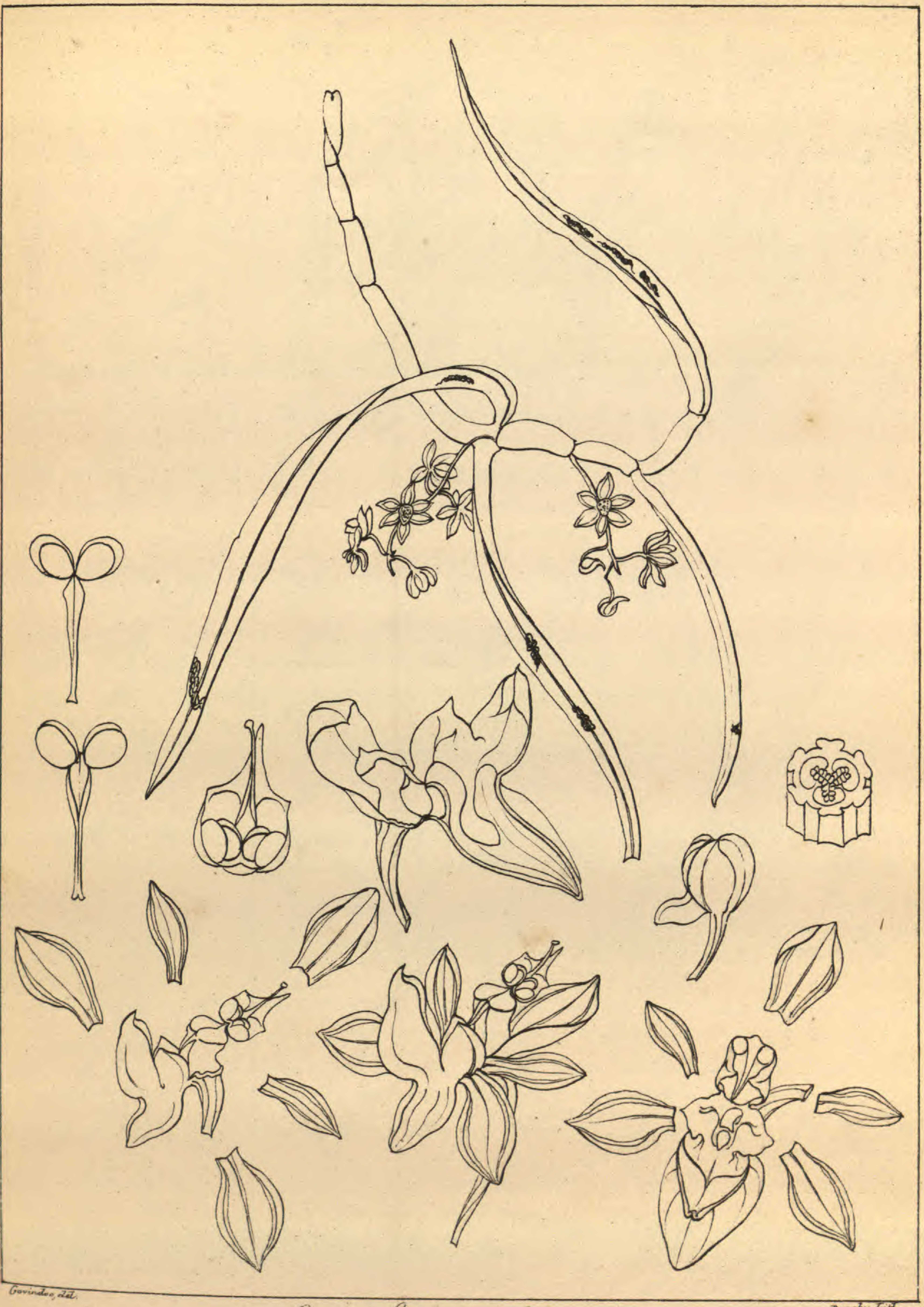


Govindoo, del. Dunphy, Lith.

Aerides cylindricum

Saccolabium guttatum (Lindl.)

Dumphy, lith.



Govindoo, del. Dumphy, Lith.

Sarcanthus pauciflorus (R.W.)

Zoseterostylis Walkeræ (R.W.) Acriopsis Indica (R.W.) Appendicula Hasseltii (Bl.)

Govindoo, del. Dumphy, Lith.

Bolbophyllum, tremulum (R.W.)

Govindoo, del. Dumphy, Lith.

Pattonia macrantha (R.W.)

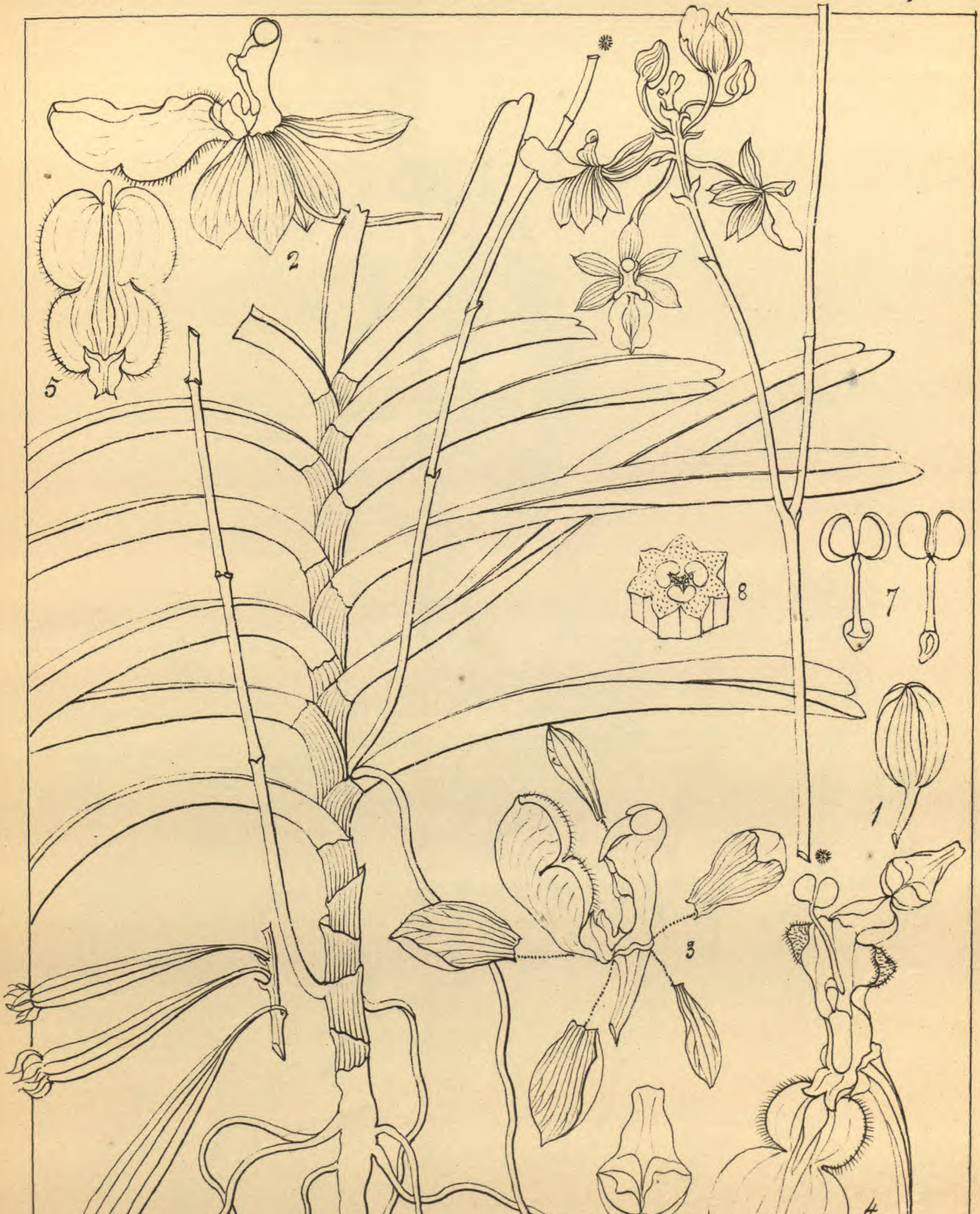
Govindoo, del. Dunphy, lith.

Govindoo, del. Dunphy, lith.

Cymbidium erectum (R.W.)

Dunphy, Lith.

Cyrtopera Cullenii (R.W.)

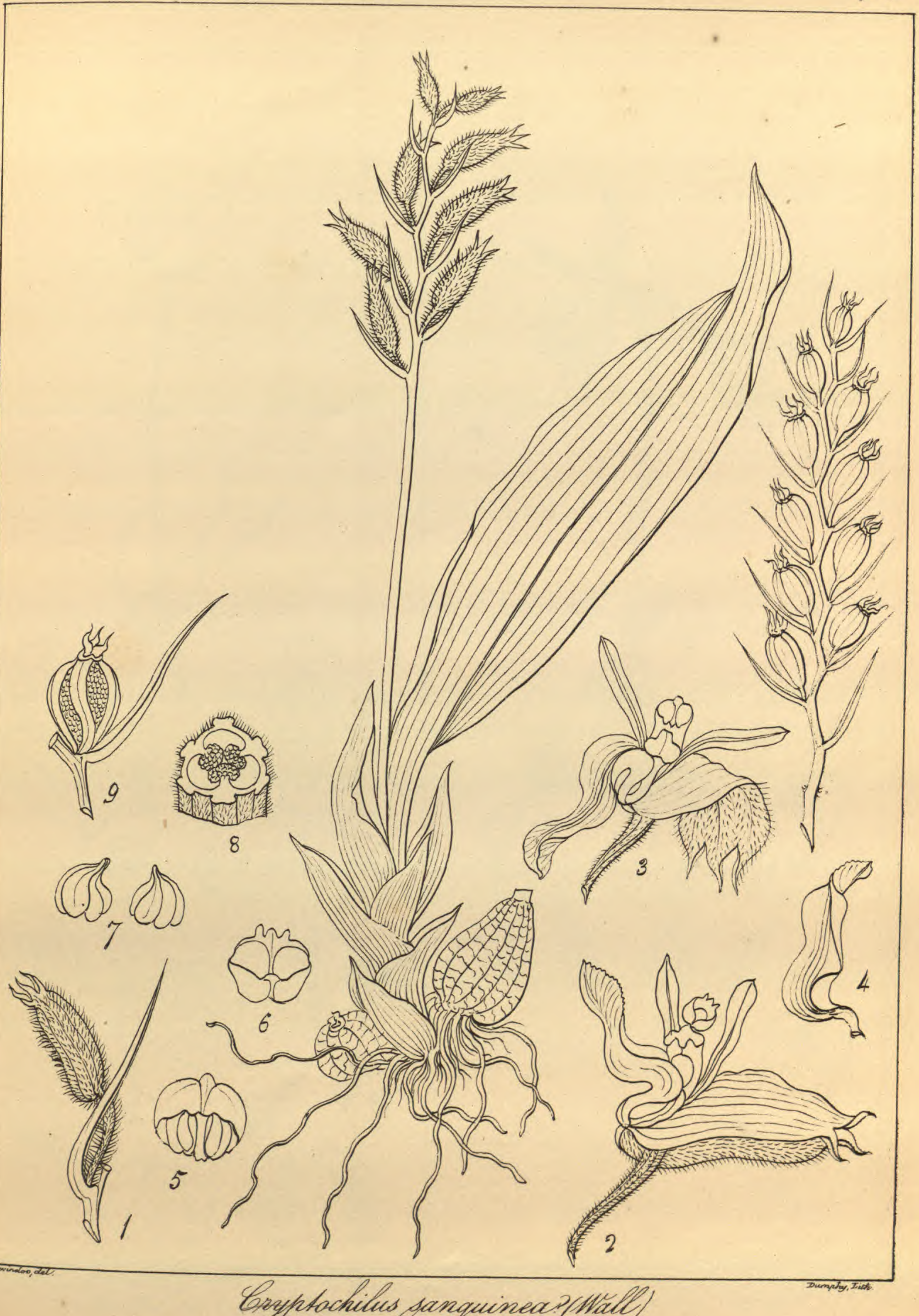


Govindoo, del. Dumphy, Lith.

Cottonia macrostachya (R.W.)

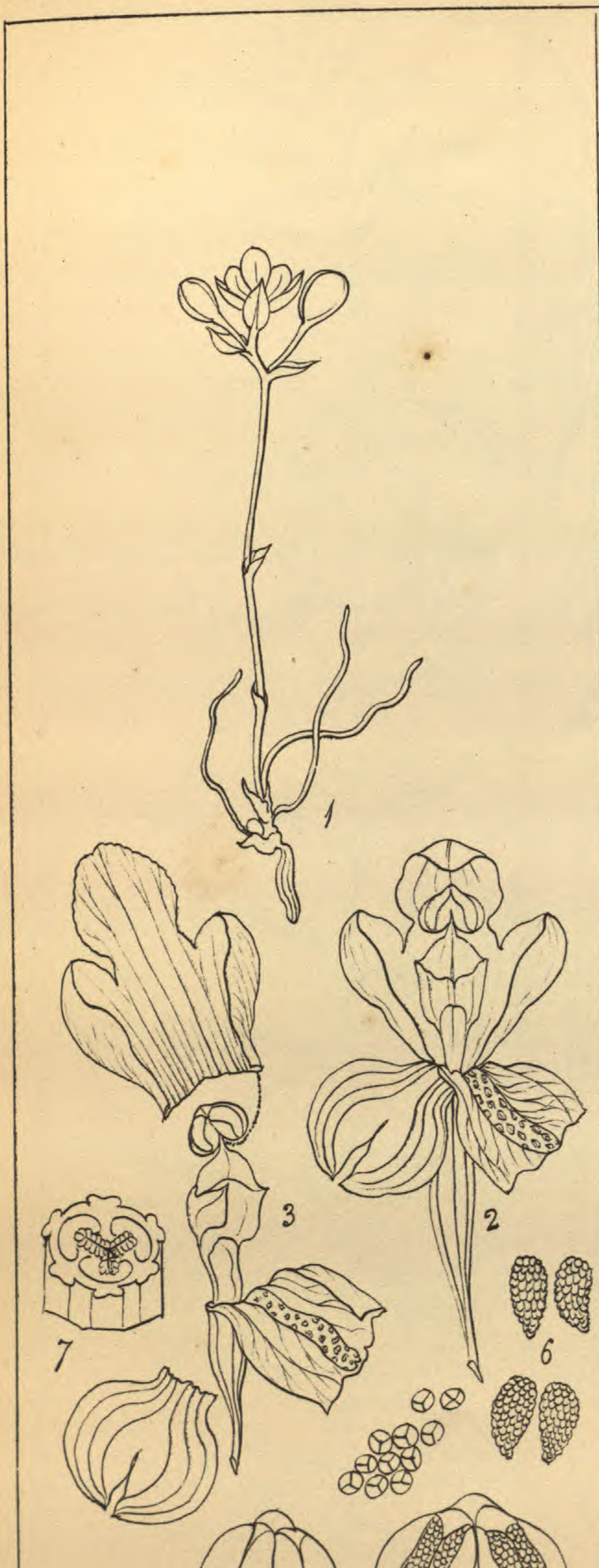
Govindoo, del. Dumphy, Lith.

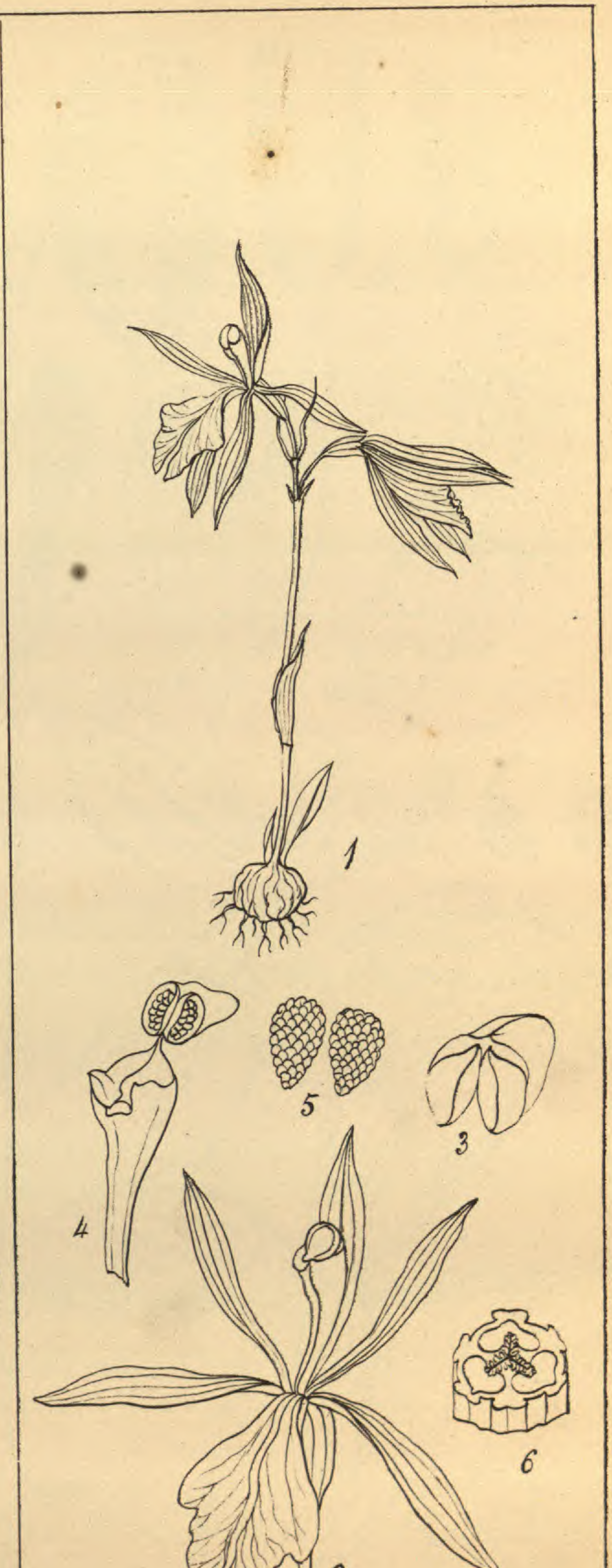
Tæniophyllum (Jerdonianum (R.W.)



Govindoo, del. Dunphy, Lith.

Cryptochilus sanguinea? (Wall)



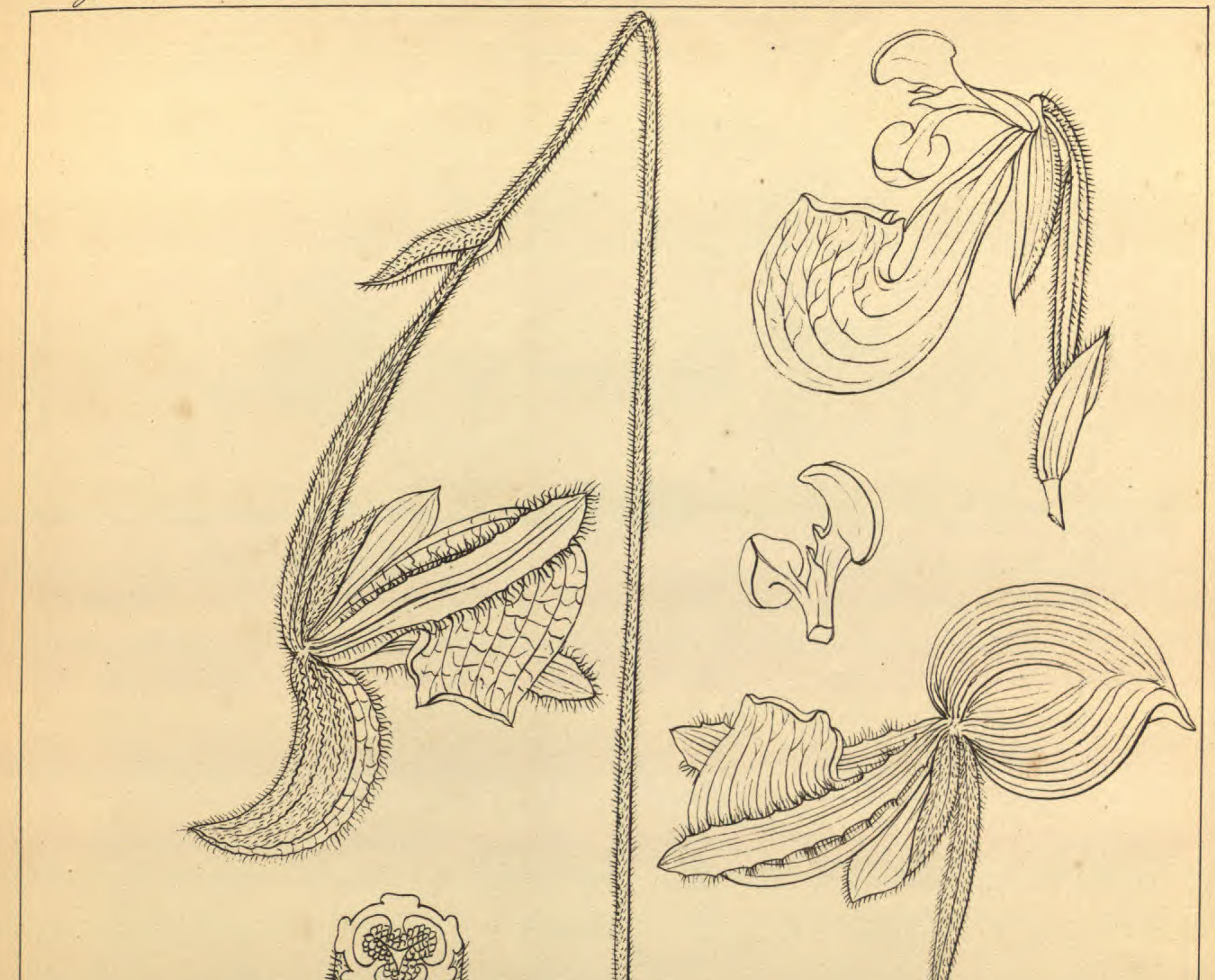


Govindoo, del. Dumphy, lith.

Apetalon, minutum (R.W.) Pogonia biflora (R.W.)

Govindoo, del. Dumphy, Lith.

Podanthera pallida (R.W.)



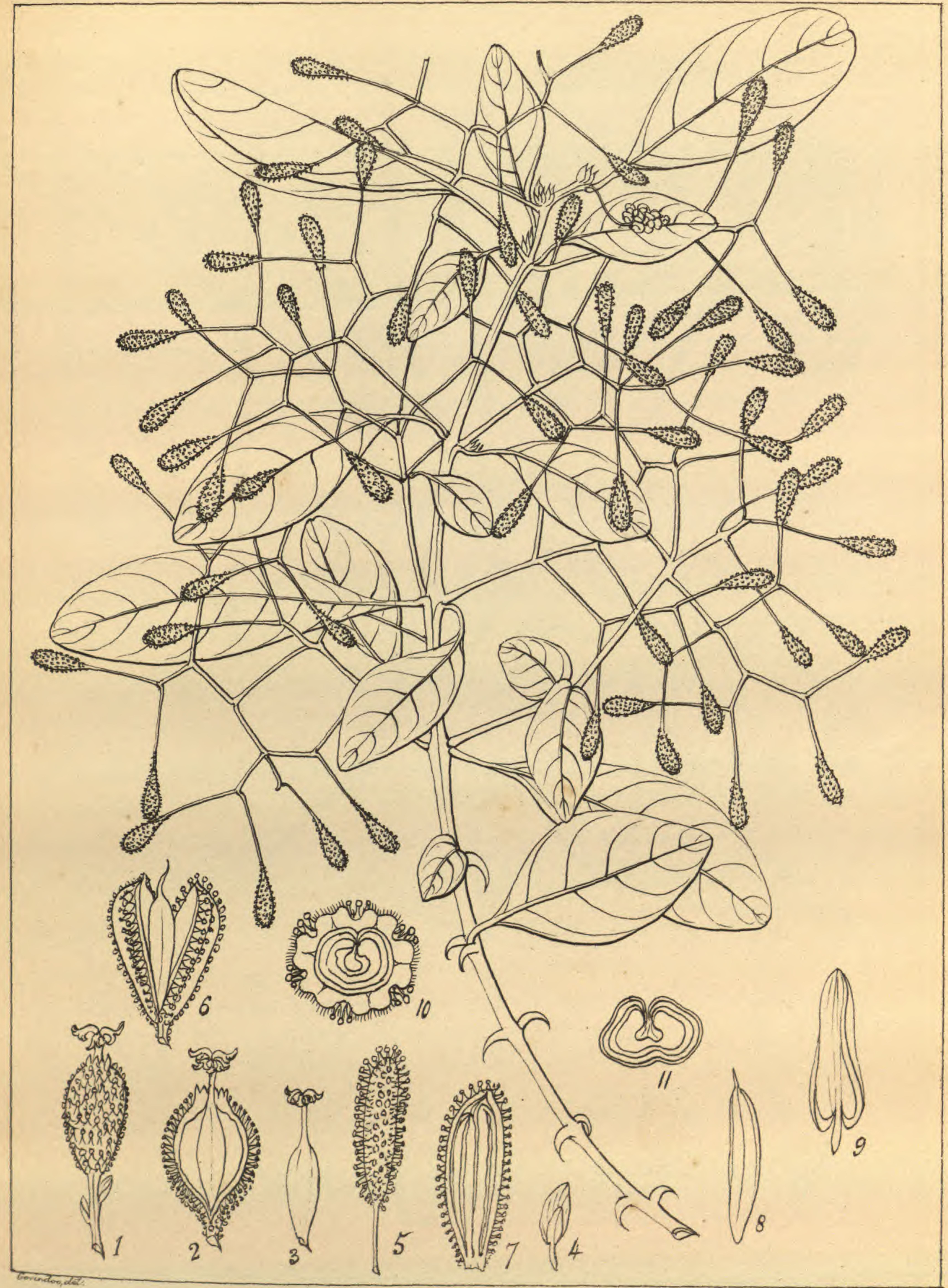
Govindoo, del. Dunphy, Lith.

Cypripedium purpuralum (Lind)

Govindoo, del. Dumphy, Lith.

Cullenia excelsa (R.W.)

Pisonia aculeata ♂ (Linn.)



Govindoo, del. Dunphy, lith.

Pisonia aculeata ♀ (Linn)

Govindoo, del. Dumphy, Lith.

Pisonia mornisbifolia (R. Br.)

Boerhaavia repanda (Willd.)

Govindoo, del. Dumphy, lith.

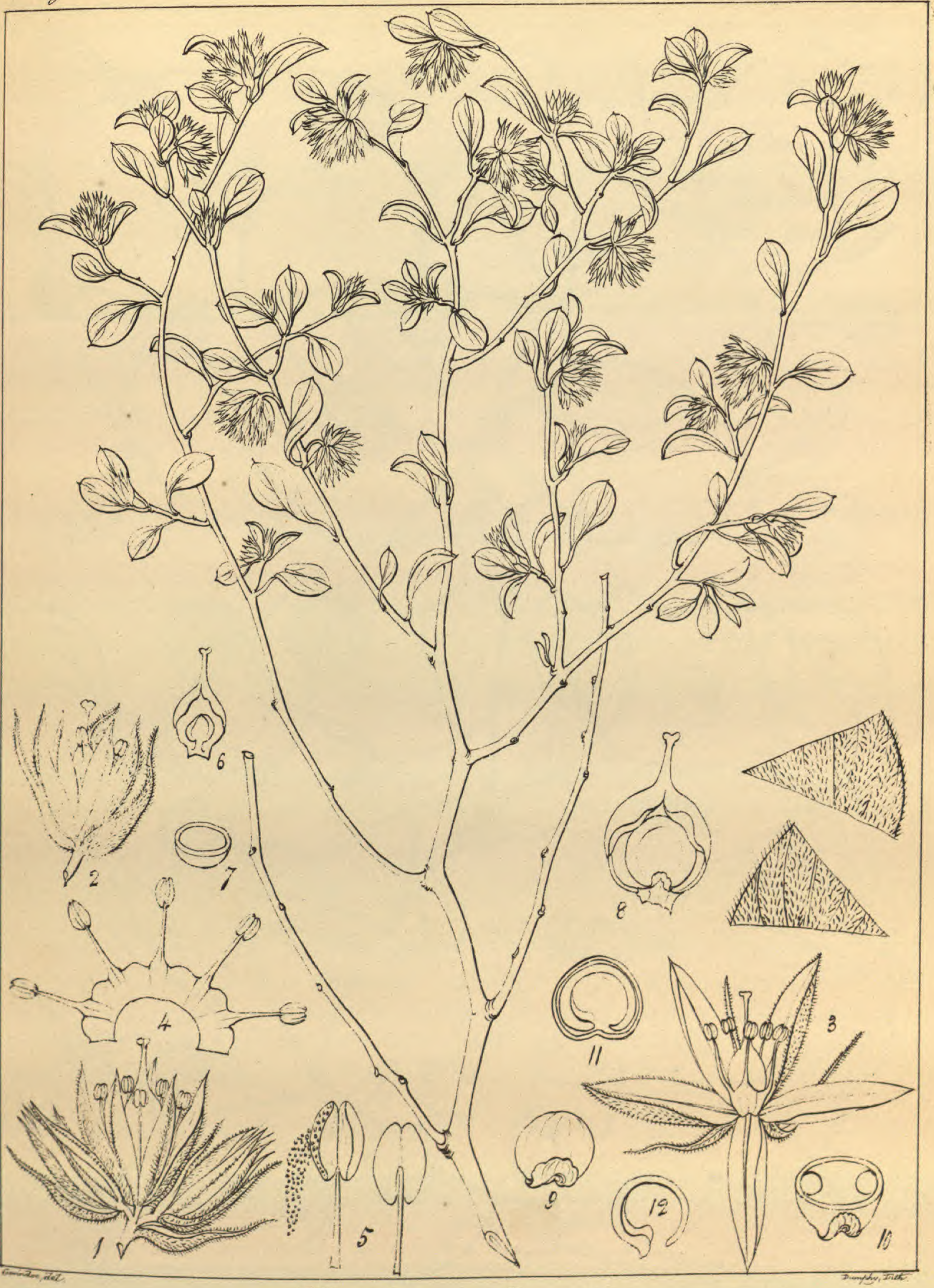
Celosia argentea (Moq.)

Govindoo, del. Dumphy, lith.

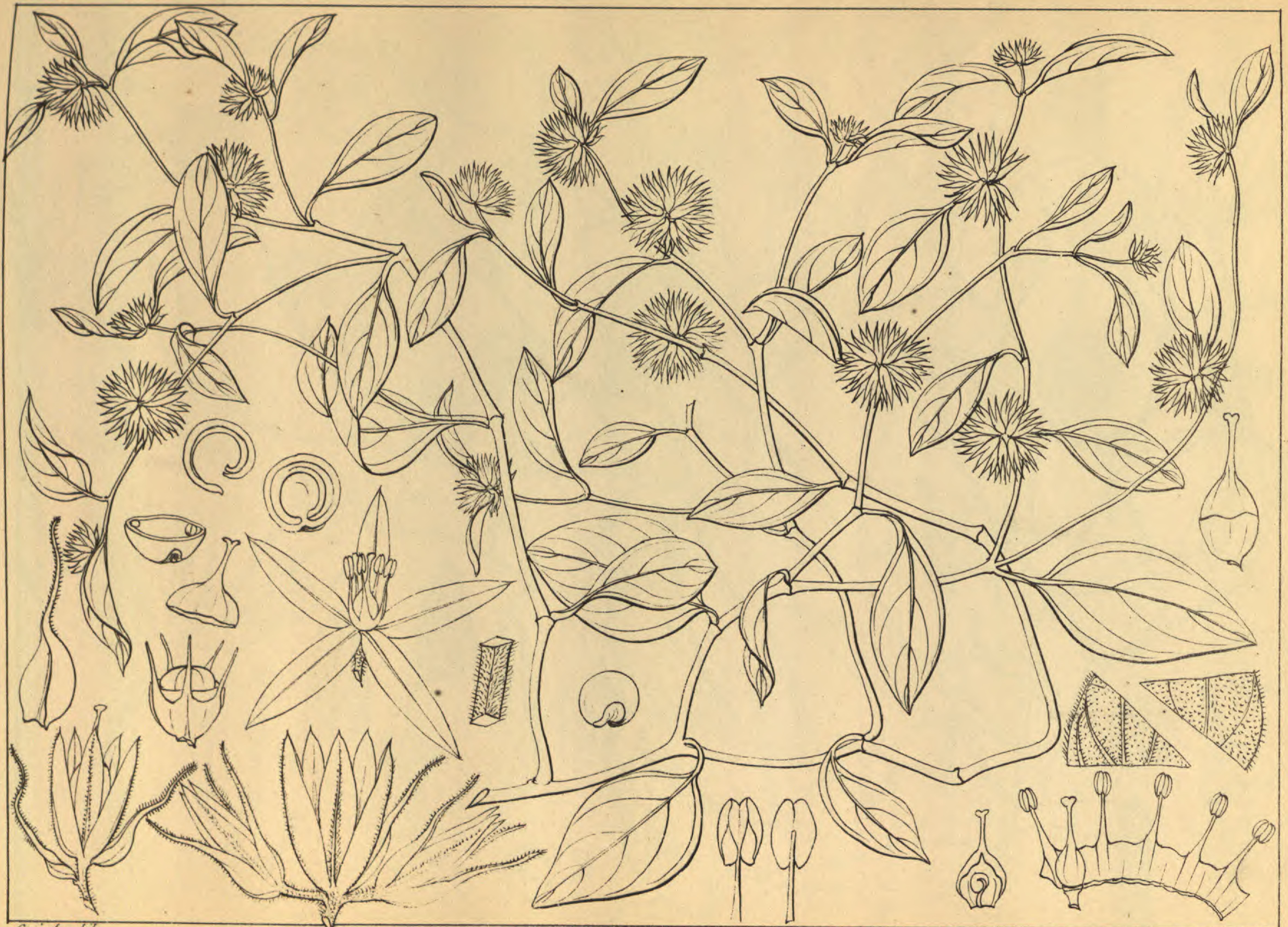
Celosia pulchella (Moq.)

Govindoo, del. Dunphy, lith.

Chamissoa albida (Moq.)



Chamissoa nodiflora (Mart.)

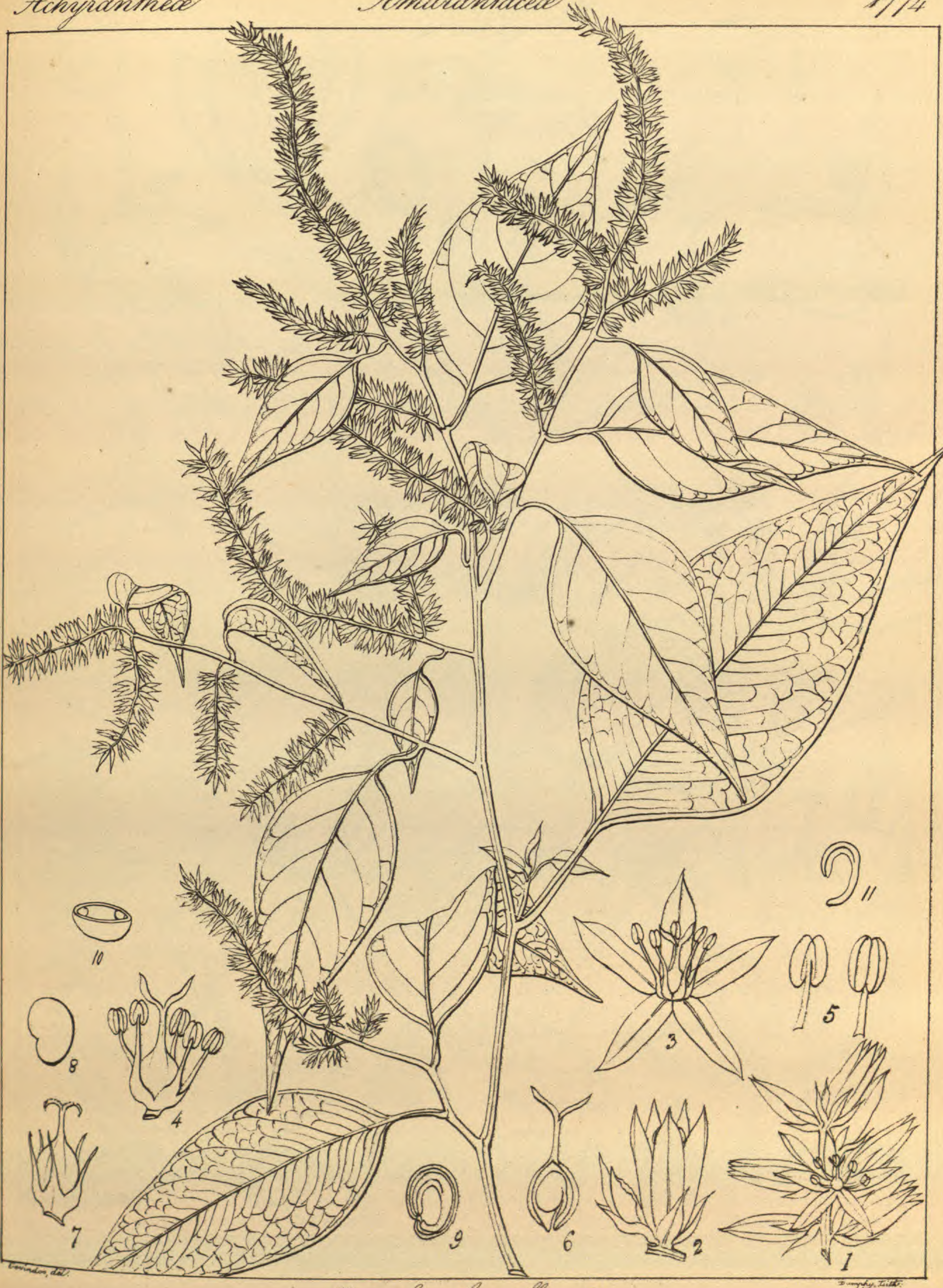


Govindoo, del.   Dumphy, Lith.

Chamissoa dichotoma (Moquin)

Gorindoo, del. Dumphy, Lith.

Chamissoa aspera (R.W.)



Govindoo, del. Dumphy, lith.

Banalia thyrsiflora (Moq.)

Govindoo, del. Dumphy, Lith.

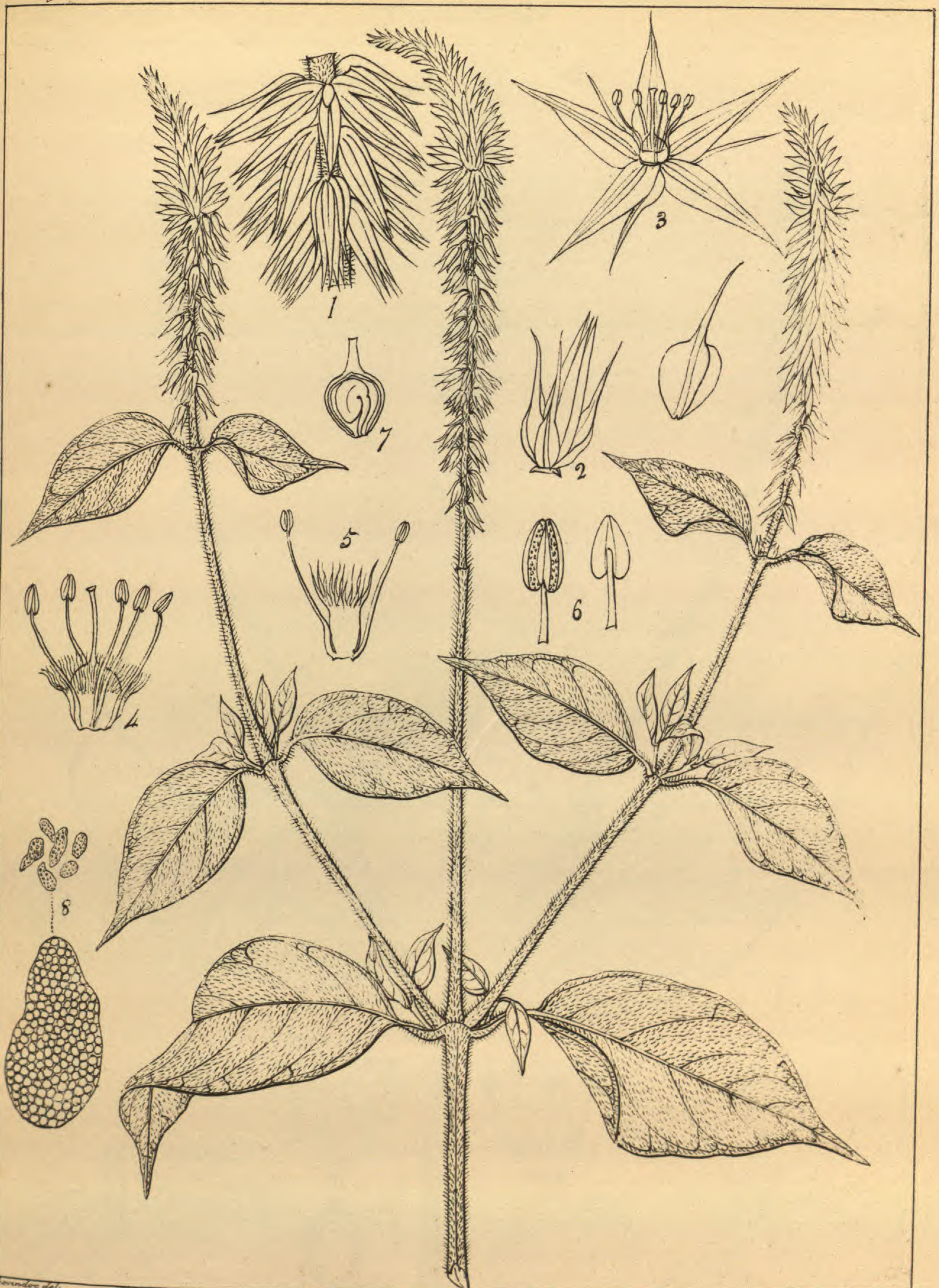
Psilotrichum nudum (Moq)

Aerva floribunda (R.W.)

Govindoo, del.

Dumphy, Lith.

Achyranthes aspera (Linn)



Achyranthes rubrofusca (R.W.)

Govindoo, del. Dunphy, lith.

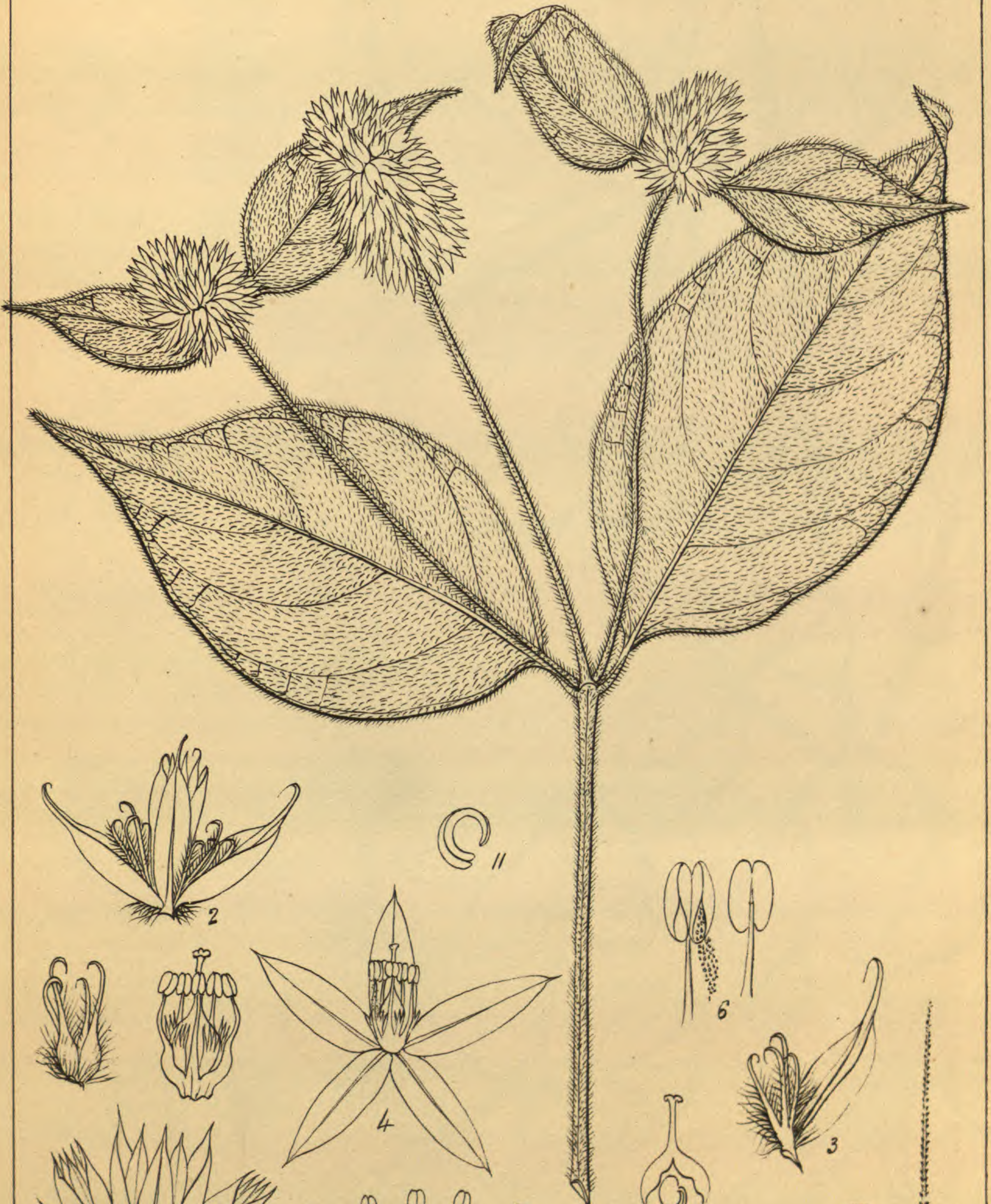
Achyranthes bidentata (Blume)

Govindoo, del. Dumphy, Lith.

Centrostachys aquatica (Wall)

Dumphy, Lith.

Cyathula tomontasa (Mog.)



Govindoo, del. Dunphy, Lith.

Cyathula capitata (Moq.)

Govindoo, del. Dumphy, lith.

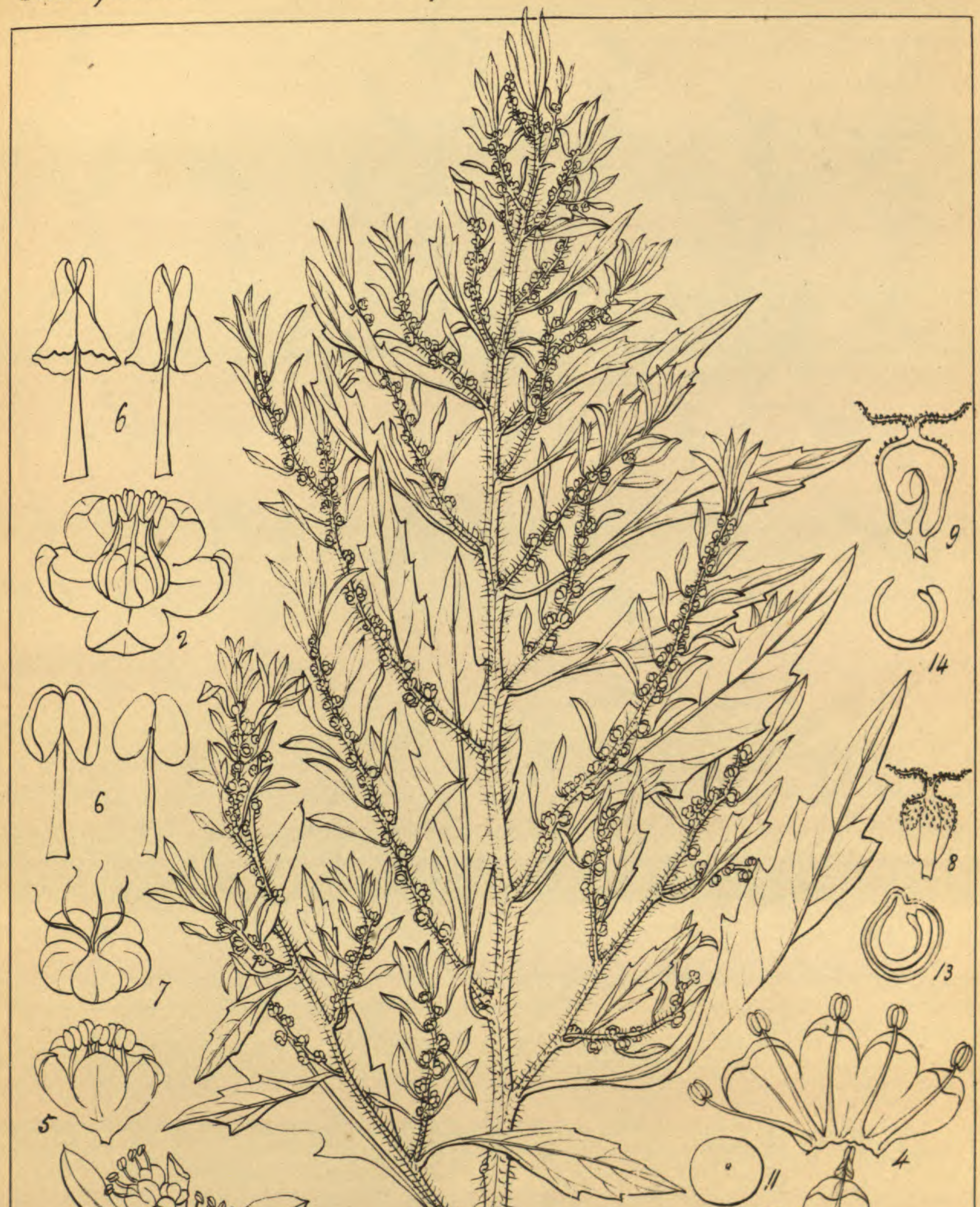
Pupalia orbiculata (R.W.)

Gonzalez, del. Dumphy, Lith.

Gomphrena globosa (Lin.)

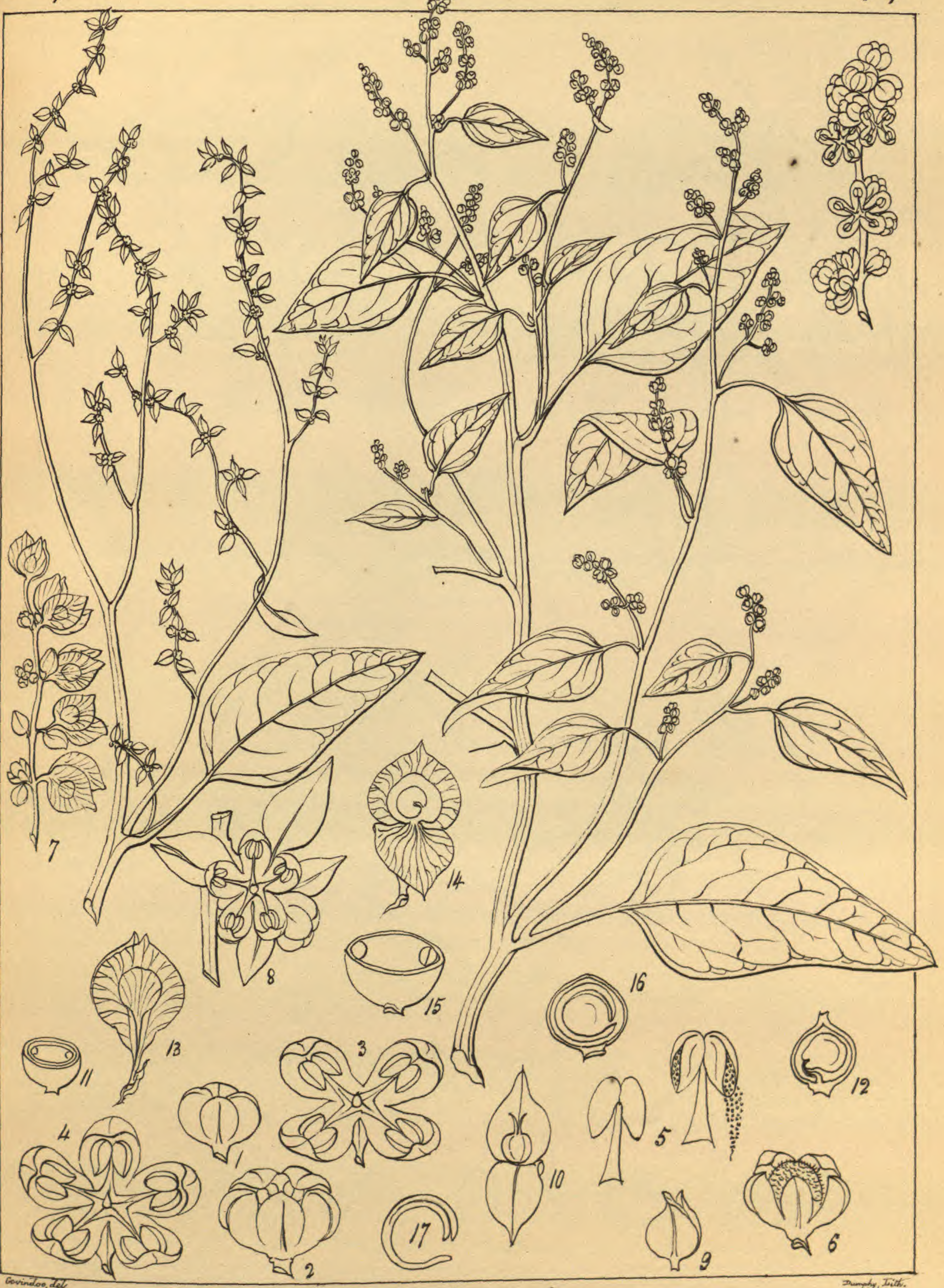
Govindoo, del. Dumphy, Lith.

Cometes Suratensis (Burm)



Govindoo, del. Dumphy, lith.

Chenopodium ambrosioides (Linn)

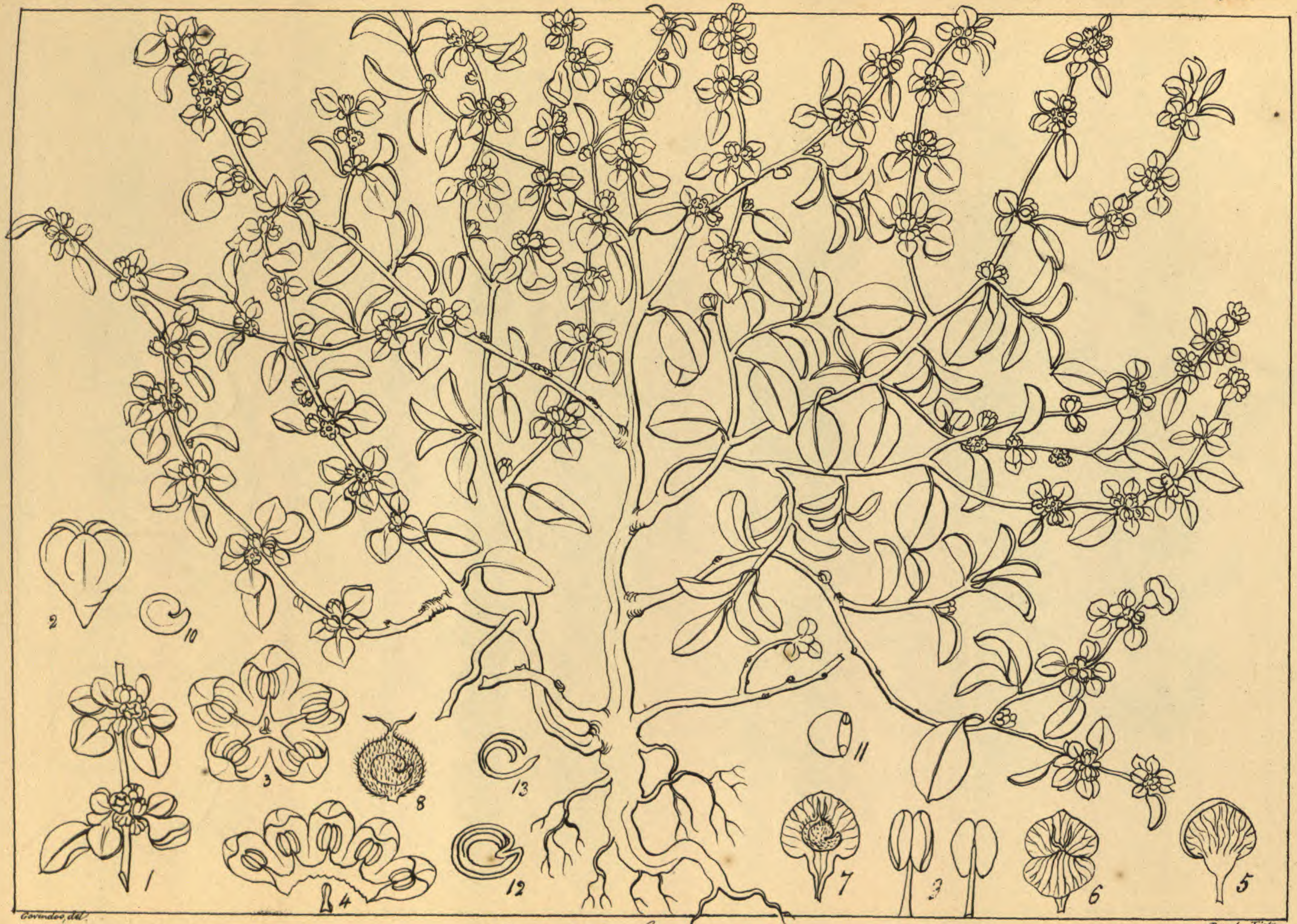


Govindoo, del. Dunphy, Lith.

Atriplex heterantha (R.W.)

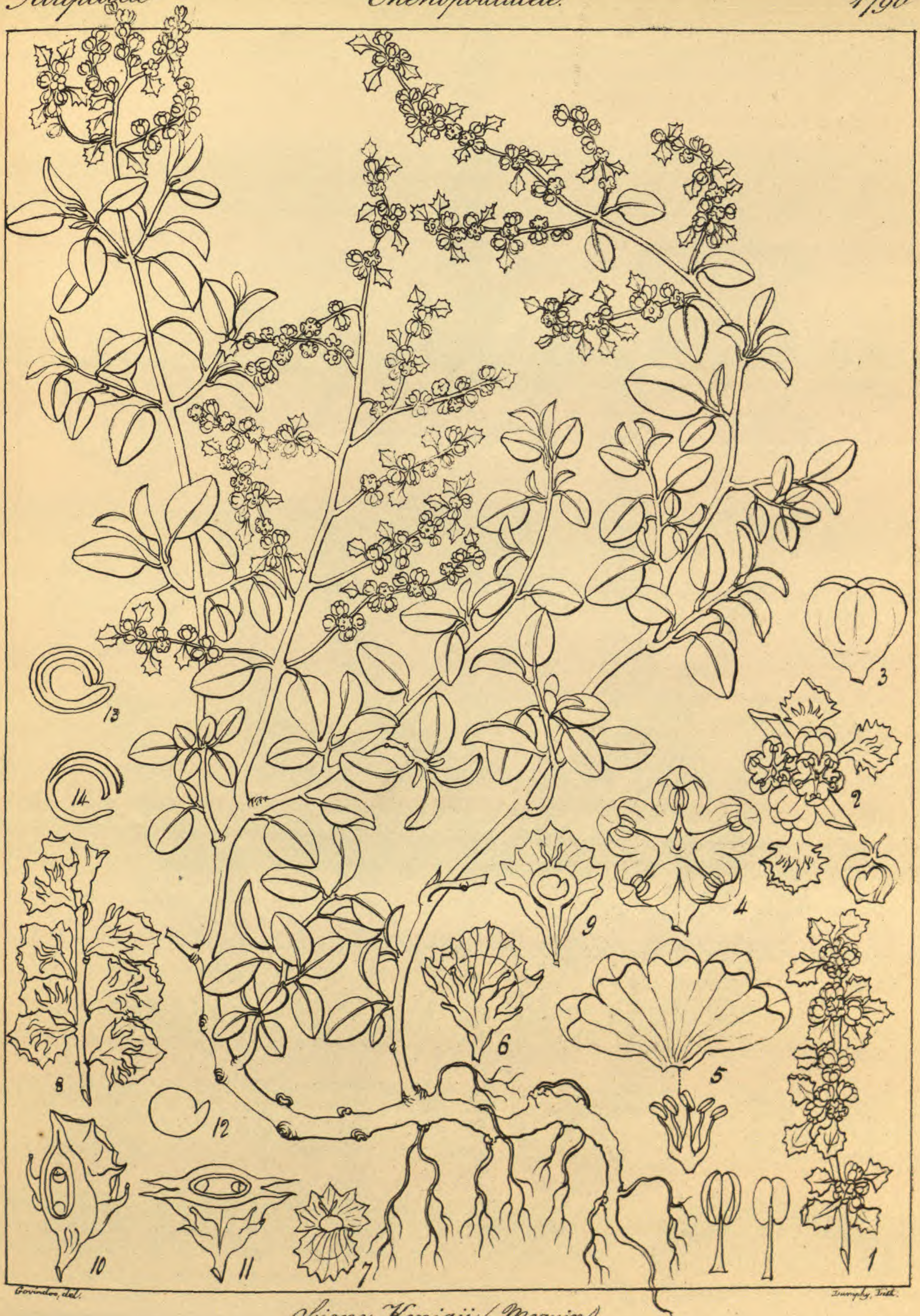
Govindoo, del. Dumphy, Lith.

Obione fera (Moq.)



Govindoo, del. Dumphy, Lith.

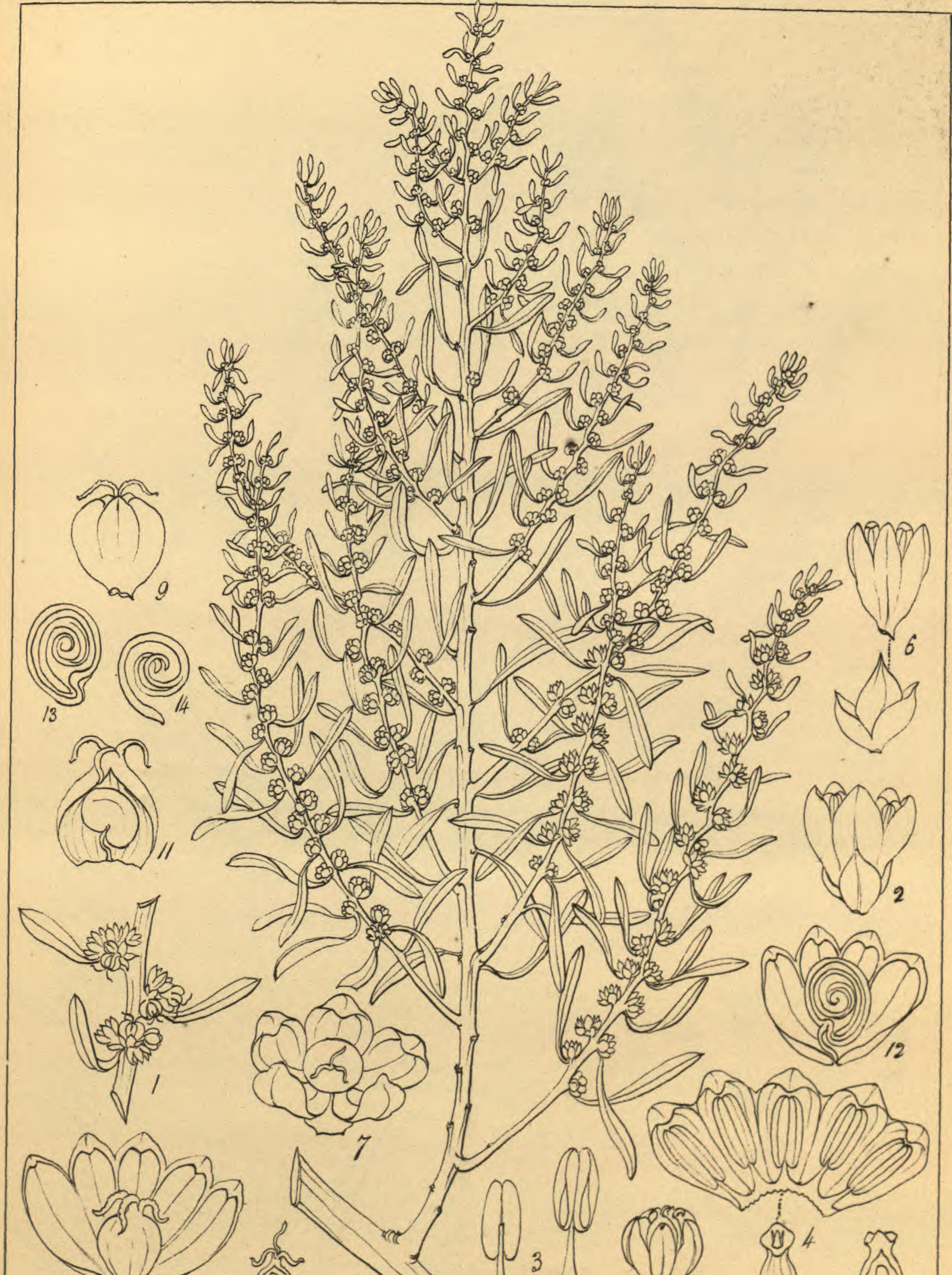
Obeone Stocksii (R.W.)



Obione Konigii (Moquin)

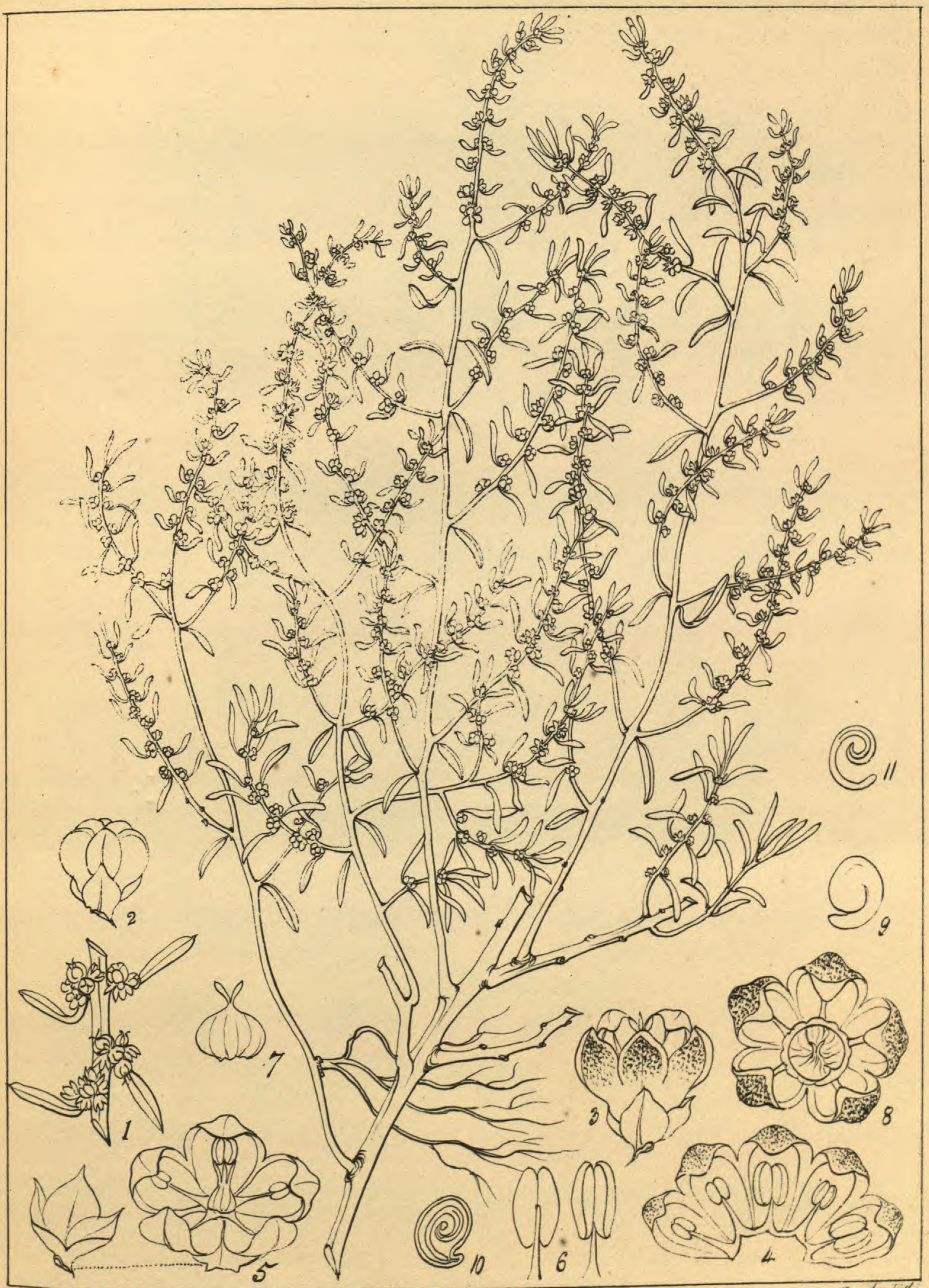
Govindoo, del. Dumphy, Lith.

Kochia Indica (R.W.)



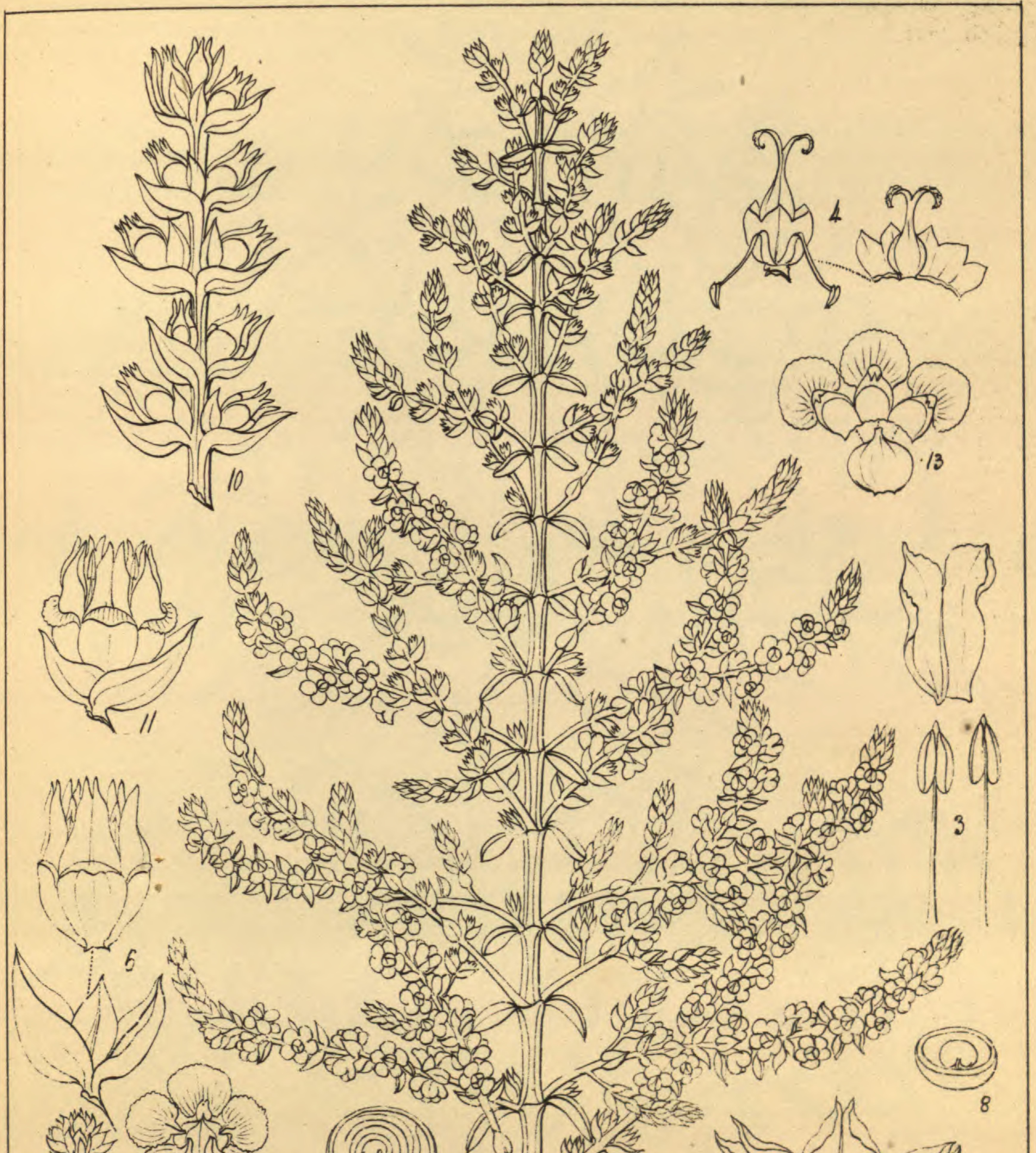
Govindoo, del. Dunphy, lith.

Suæda monoica (Forsk.)



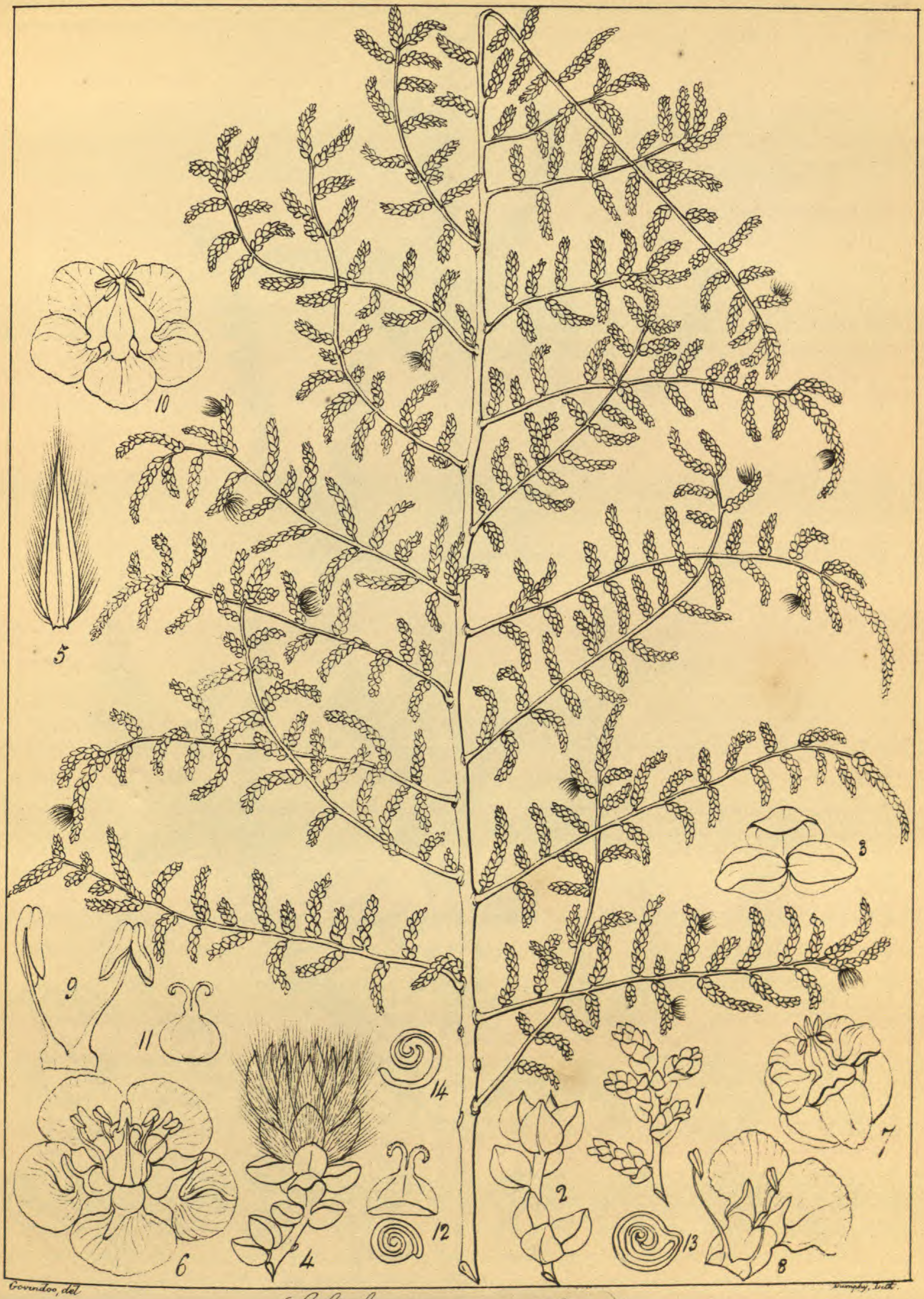
Govindoo, del. Dumphy, Lith.

Chenopodina Indica (R.W.)



Govindoo, del. Dunphy, Lith.

Caroxylon Indicum (R.W.)



Govindoo, del. Dunphy, lith.

Salsola spinoscens (Moq.)

Govindoo, del. Dumphy, Lith.

Suæda Indica (Moq)

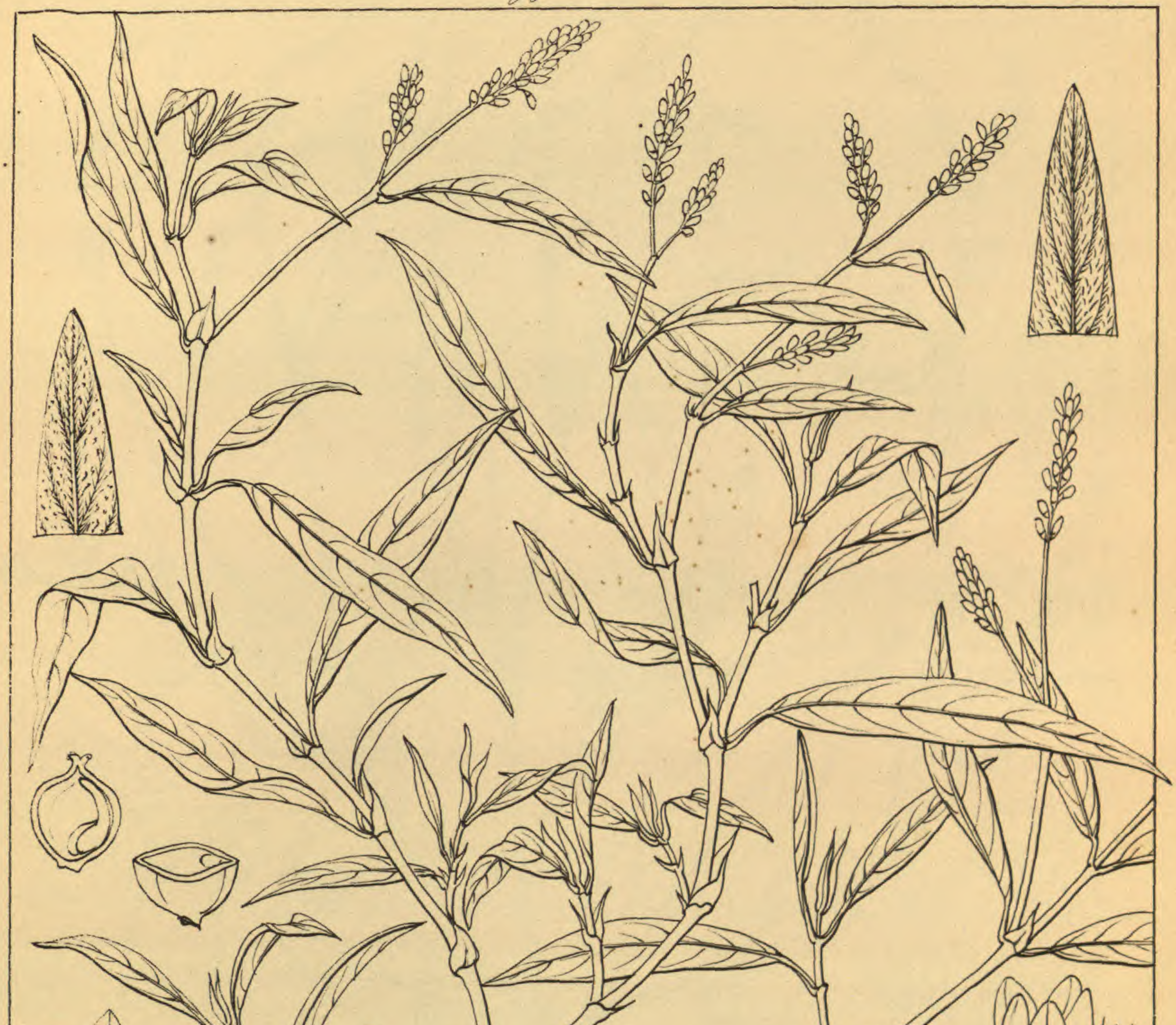
Govindoo, del. Dumphy lith.

Polygonum ambiguum (Meis.)

Govindoo, del. Dumphy, Lith.

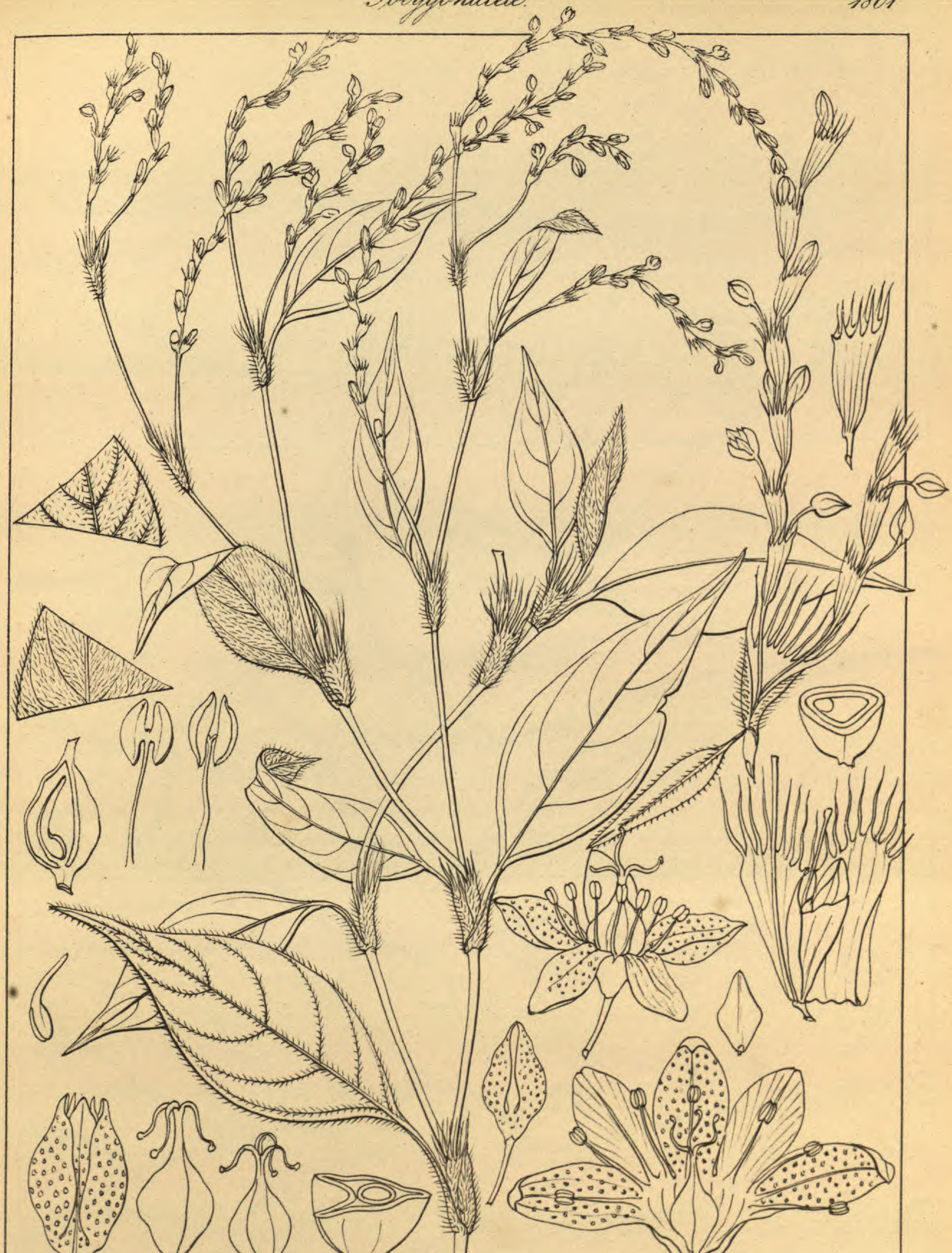
Polygonum barbatum (Linn.)

Polygonum glabrum (Willd)

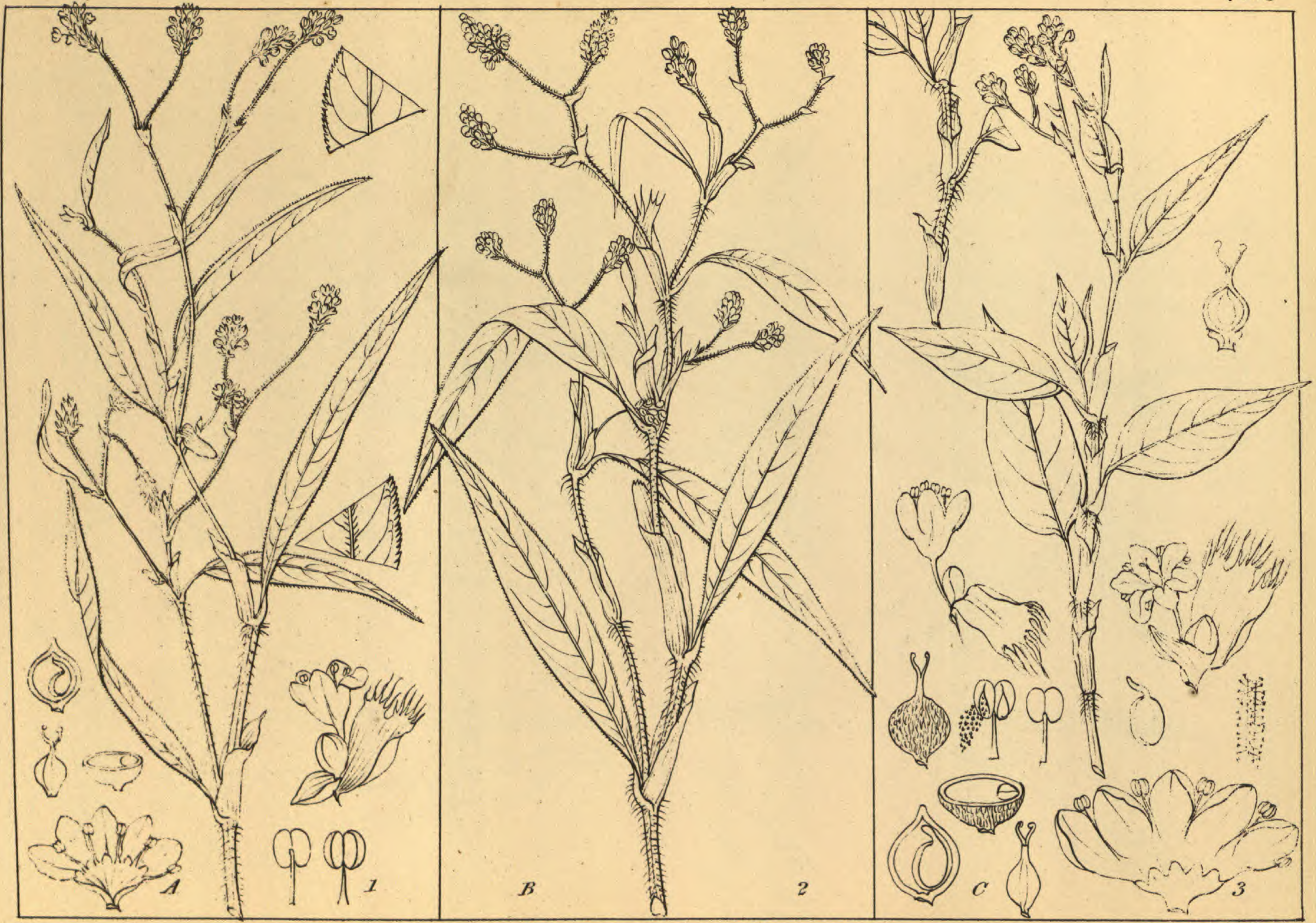


Govindoo del. Dumphy, Lith.

Polygonum strictum (Allioni)



Polygonum Donii (Mies)



Dumphy, Lith.

Polygonum pedunculare (Wall)

Govindoo, del. Dumphy, Lith.

Polygonum horridum (Roxb.)

Govindoo, del. Dunphy, Lith.

Polygonum Napalense (Meis)

Govindoo, del. *Dunphy, Lith.*

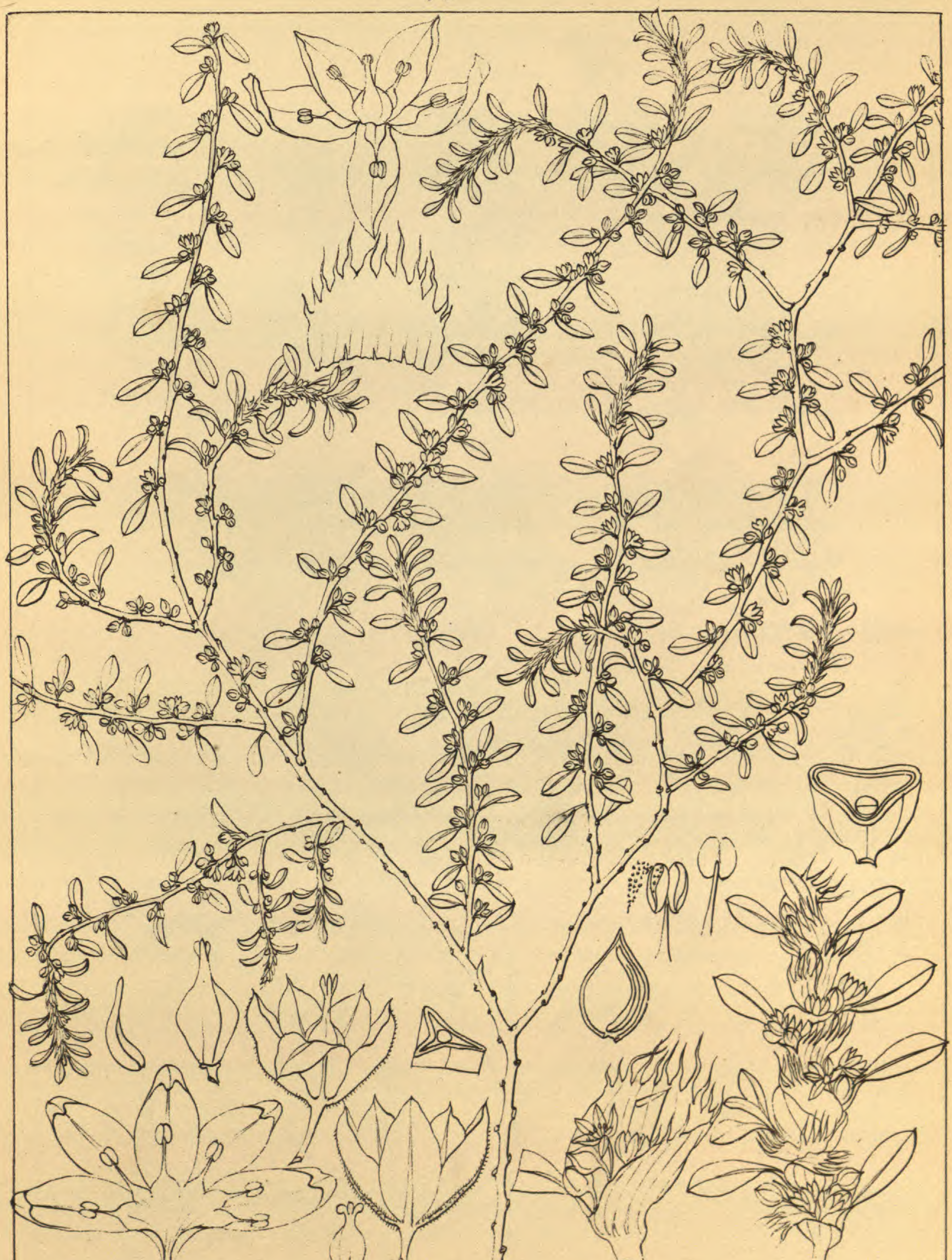
Polygonum Wallichii (Meis)

Cunsdas, del. Dunsby, Lith.

Polygonum Chinense (Linn)

Govindoo, del. Dumphy, Lith.

Polygonum Molle (Don)



Govindoo, del. Dunphy, Lith.

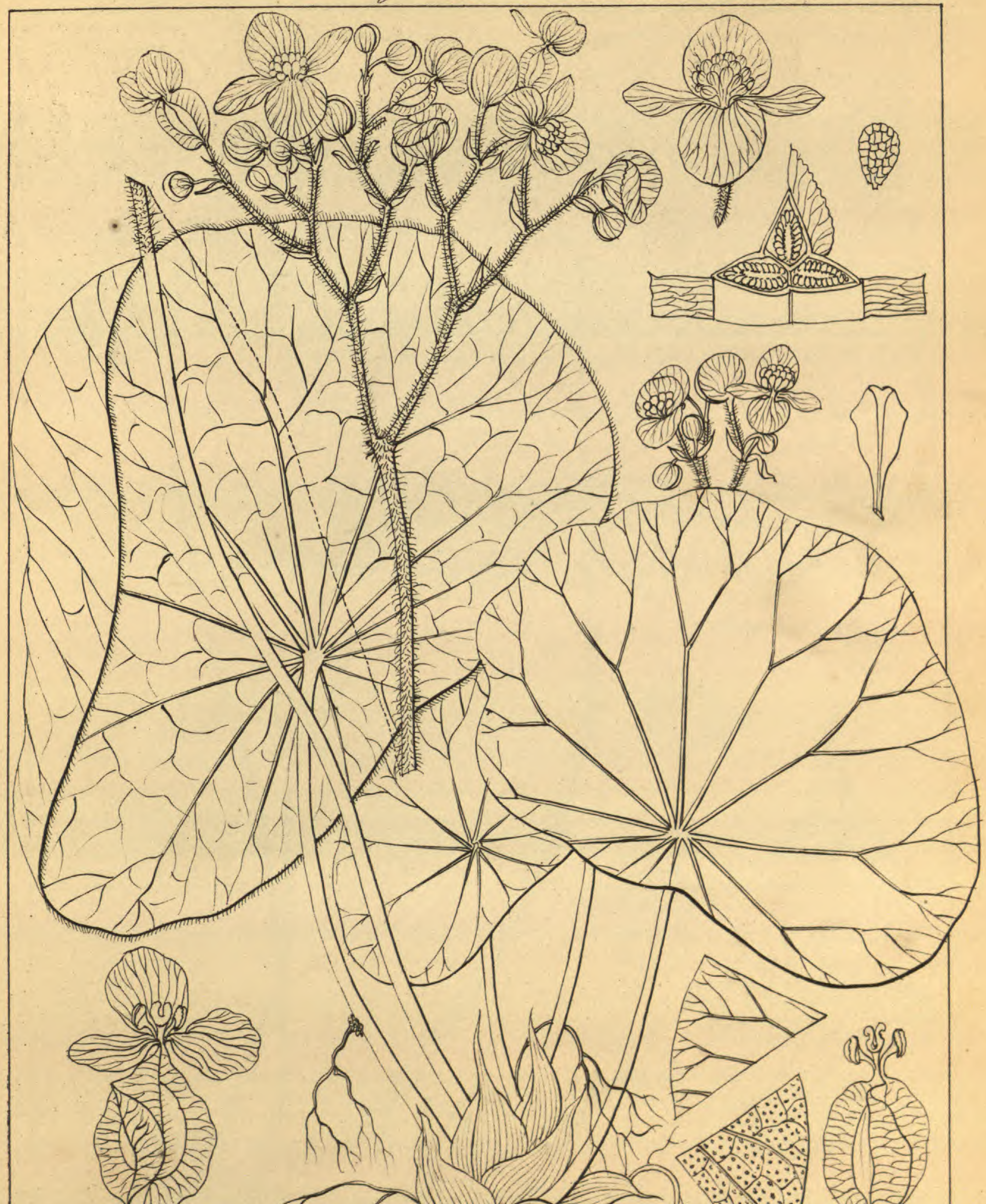
Polygonum Indicum (Roth)

Govindoo, del Dunphy, Lith.

Pteropyrum oliverii (Jaub & Spach)

Govindoo, del. Dumphy, Lith.

Rumex nepalensis (Spring)



Govindoo, del. Dumphy, Lith.

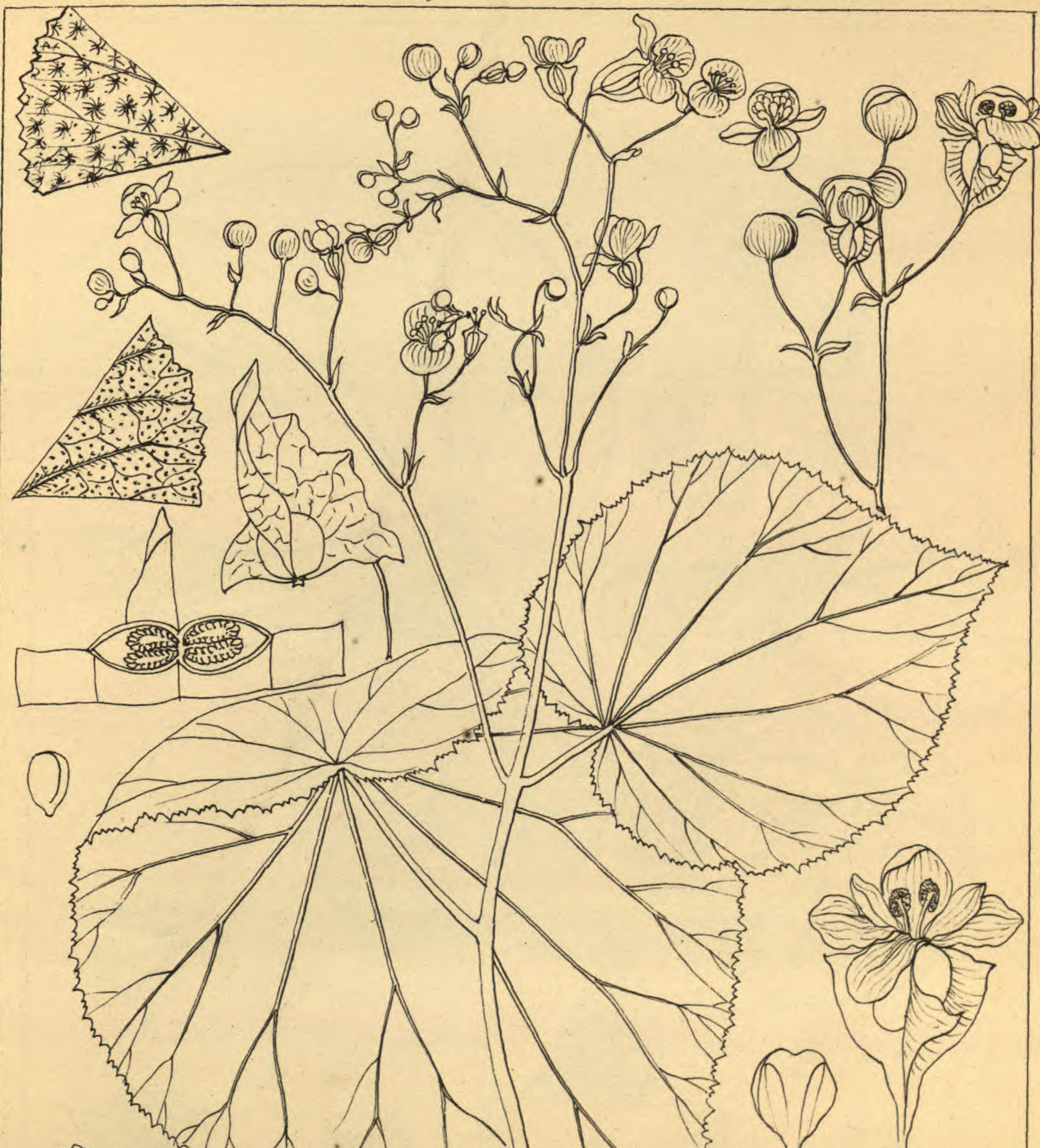
Begonia Grahamiana (R.W.)

Govindoo, del. Dumphy, Lith.

Begonia subpeltata (R.W.)

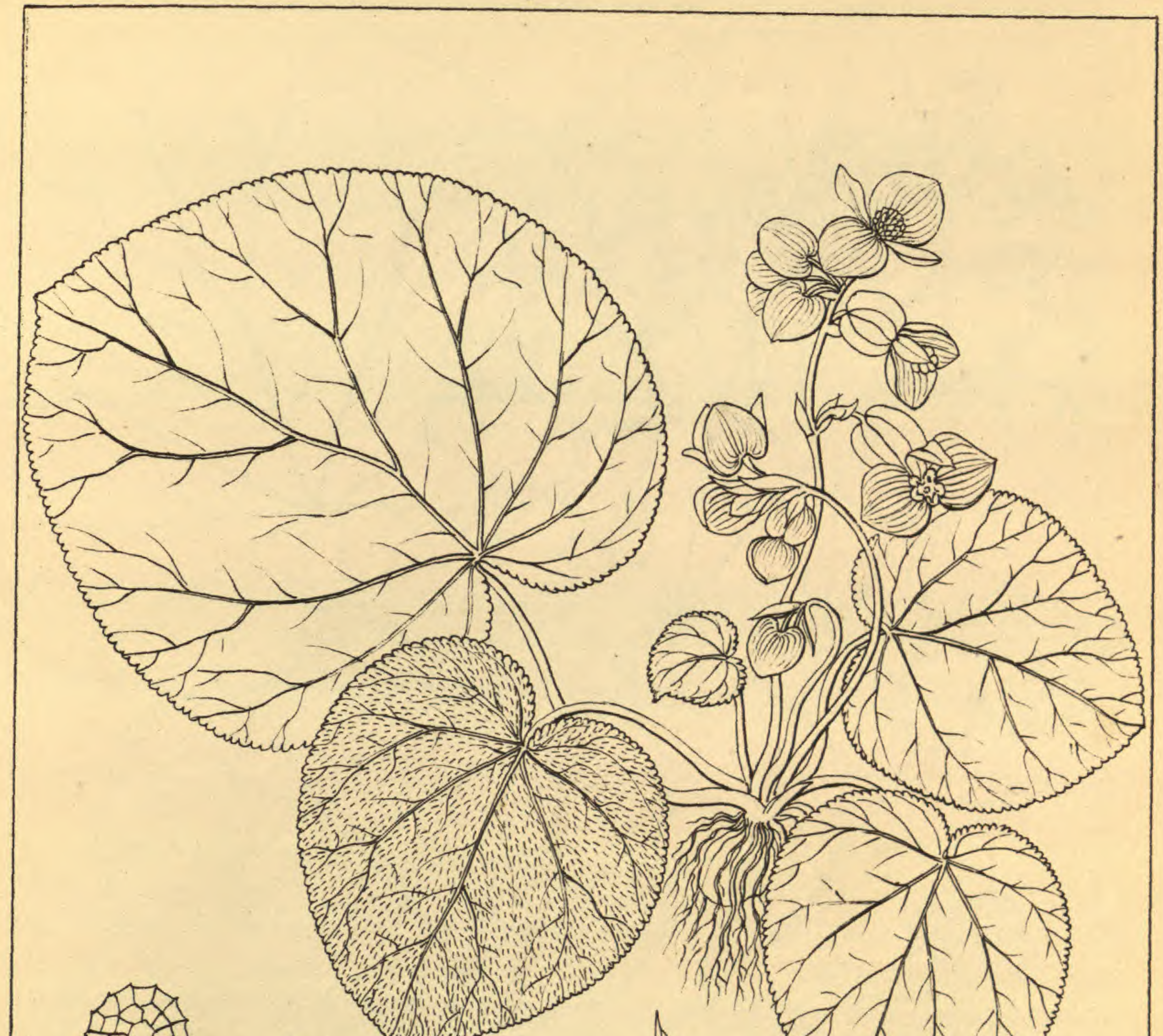
Covindoo, del. Dumphy, lith.

Begonia elipetala (Graham)



Govindoo, del. Dumphy, lith.

Diploclinium biloculare (R.W.)



Govindoo, del. Dunphy, lith.

Diploclinium arnottianum (R. W.)

Govindoo, del.

Dunphy, Lith.

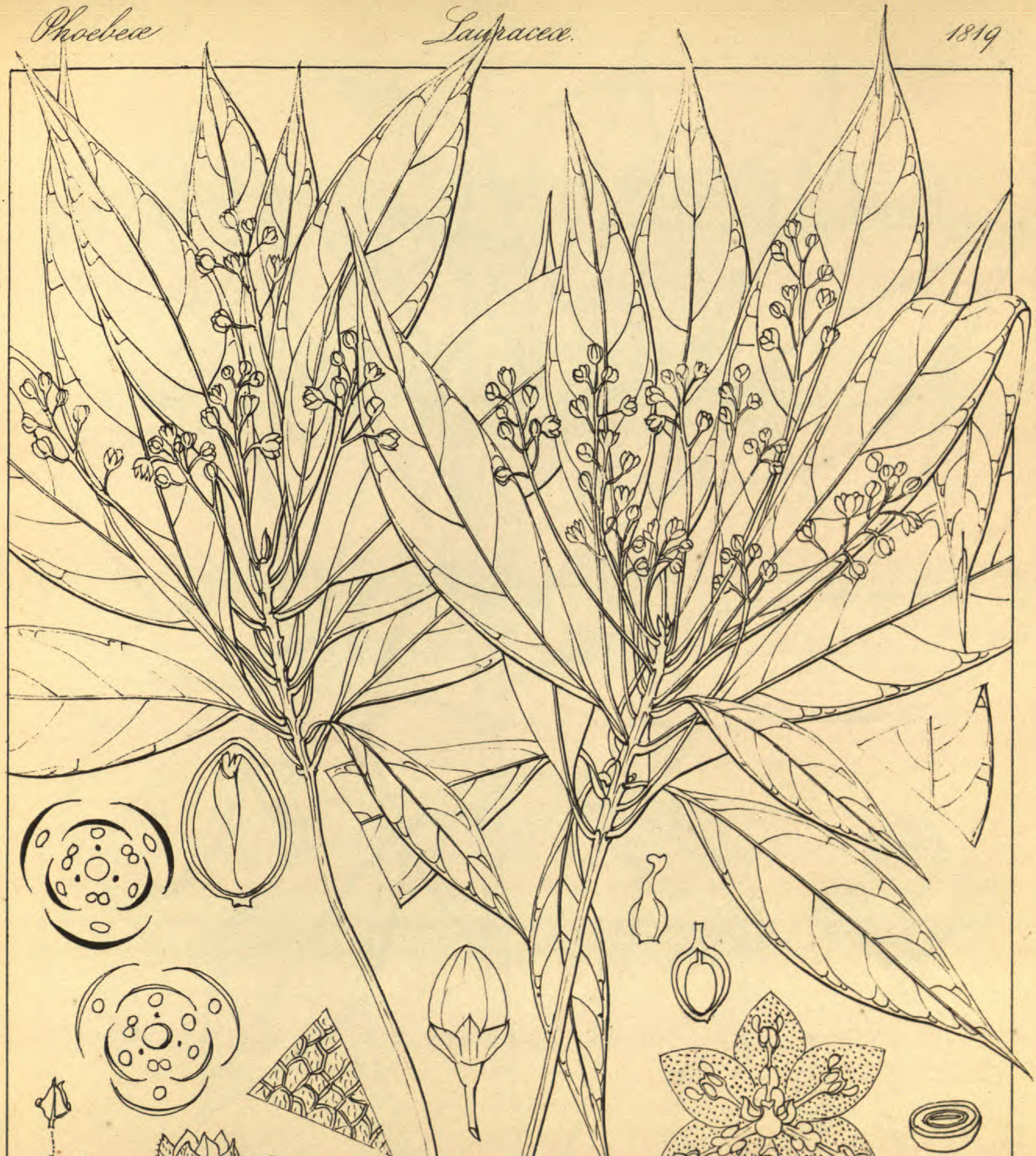
Diploclinium cordifolium (R.W.)

Govindoo, del. Dumphy, Lith.

Diploclinium Lindleyanum (R.W.)

Govindoo, del. Dumphy, Lith.

Camphora officinarum (Bauh)



Govindoo, del. Dunphy, lith.

Apollonias Arnottii (Nees)

Govindoo, del. Dumphy, Lith.

Phoebe paniculata (Nees)

Govindoo, del. Dunphy, Lith.

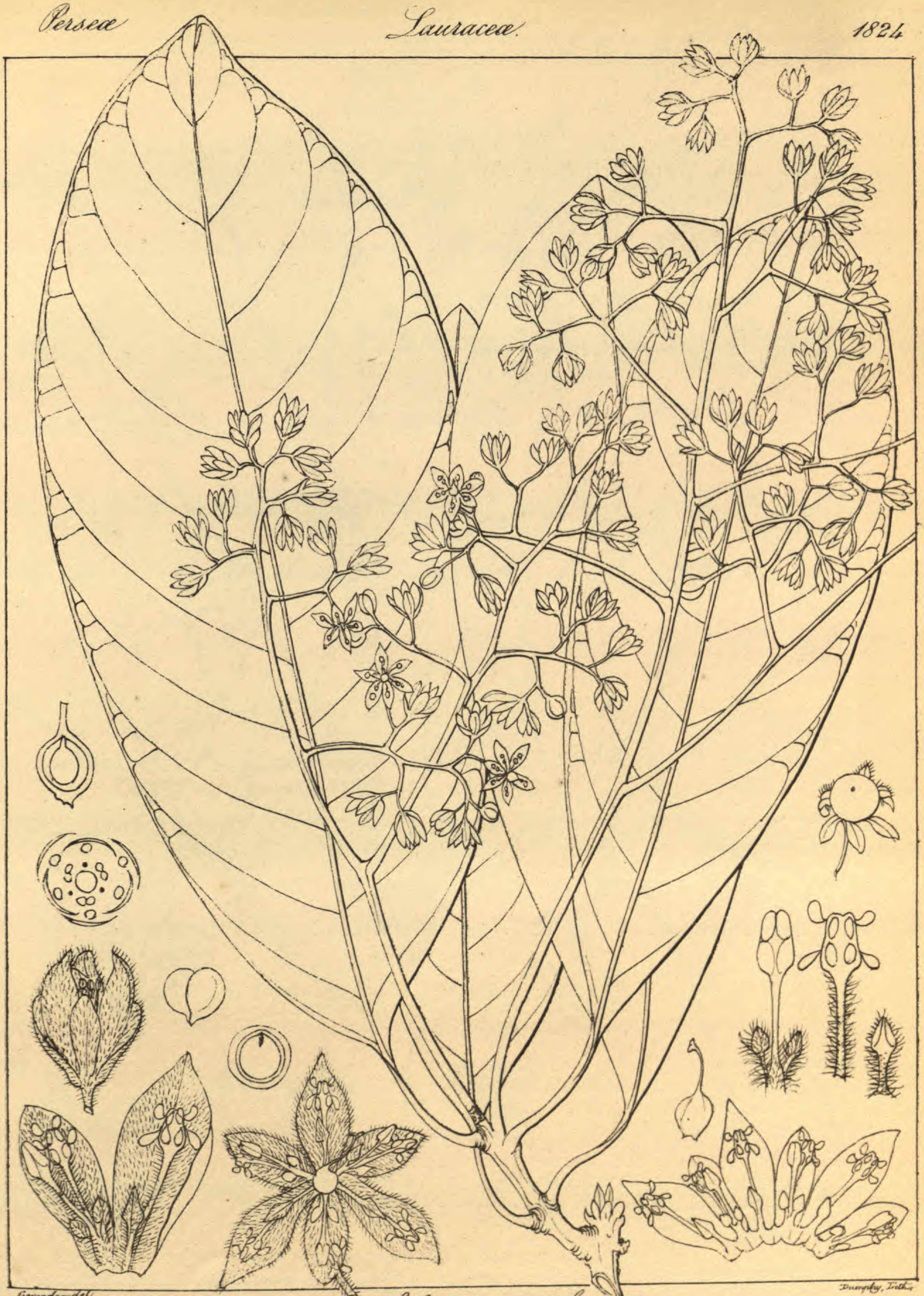
Phœbe lanceolata (Nees)

Dunphy, Lith.

Phoebe villosa (R.W.)

Govindoo, del. Dumphy, Lith.

Persea gratissima Gært.

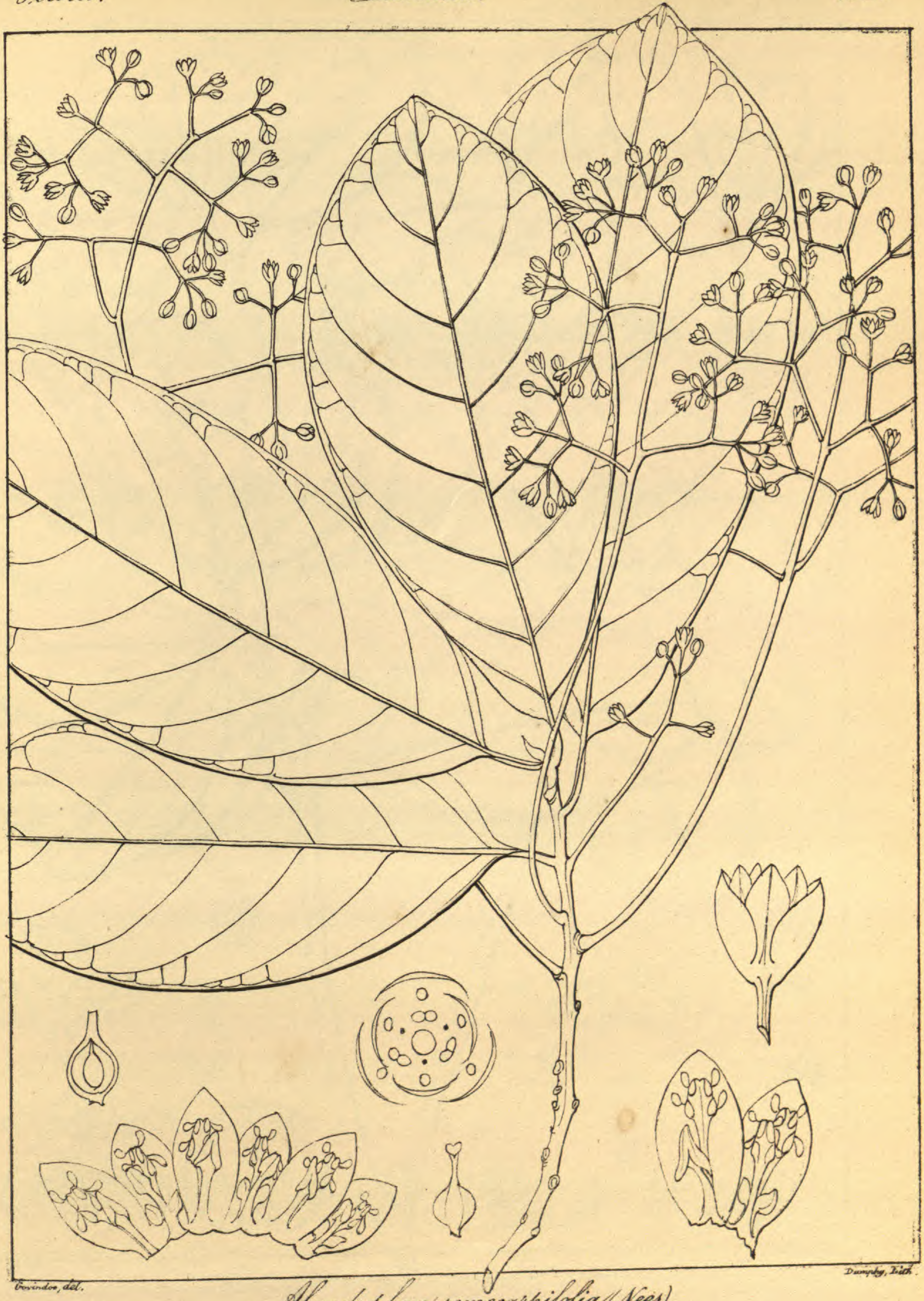


Govindoo, del. Dumphy, Lith.

Machilus macrantha (Nees)

Govindoo, del. Dunphy, Lith.

Machilus glaucescens (R.W.)



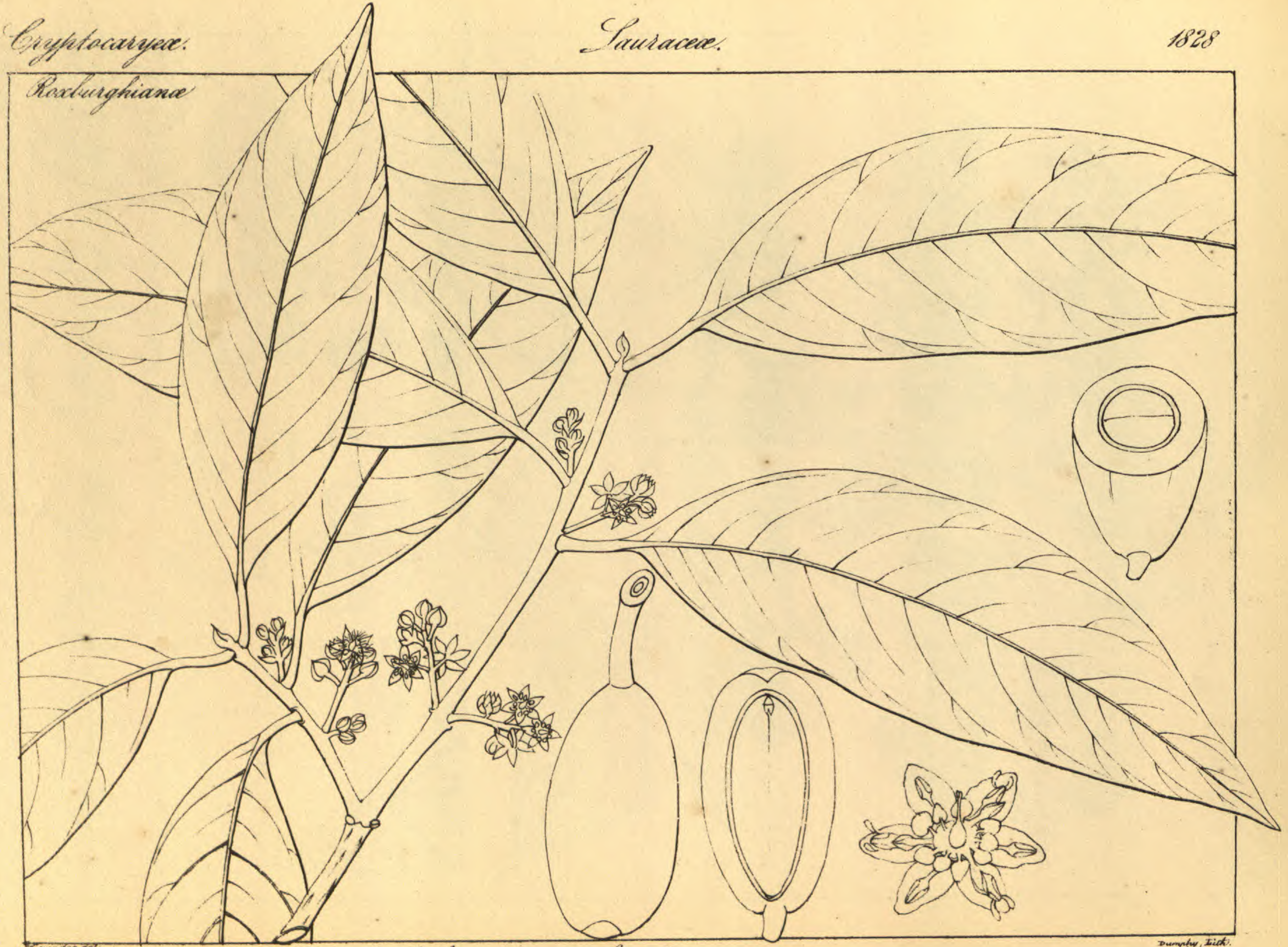
Govindoo, del. Dunphy, Lith.

Alesodaphne semecarpifolia (Nees)

Govindoo, del. Dumphy, Lith.

Alseodaphne semecarpifolia (3) Nees

Roxburghianæ

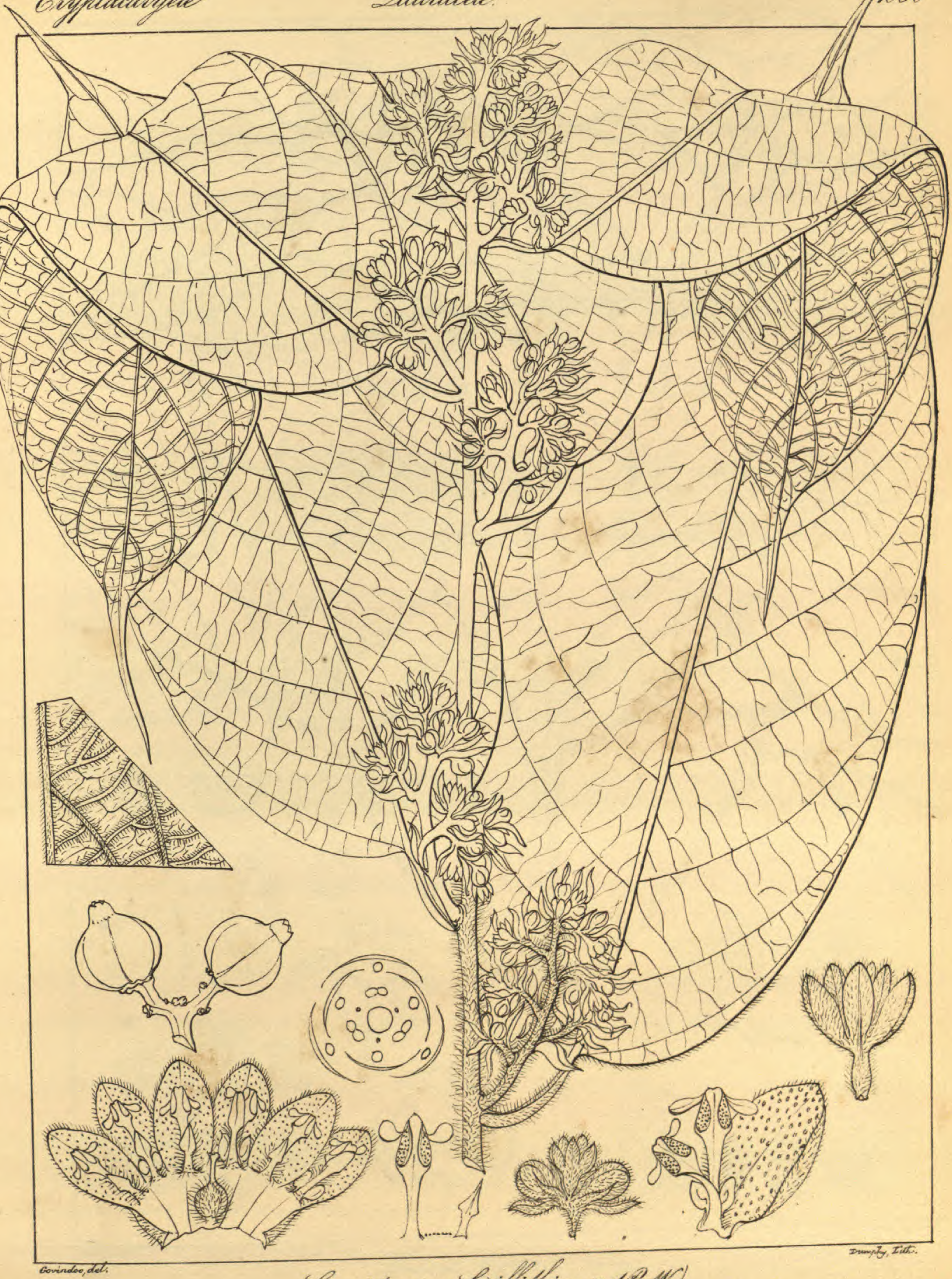


Govindoo, del. Dumphy, Lith.

Beilschmiedia Roxburghianæ (Nees)

Govindoo, del. Dumphy, lith.

Cryptocarya floribunda (Nees)



Govindoo, del. Dumphy, Lith.

Cryptocarya Griffithiana (R.W.)

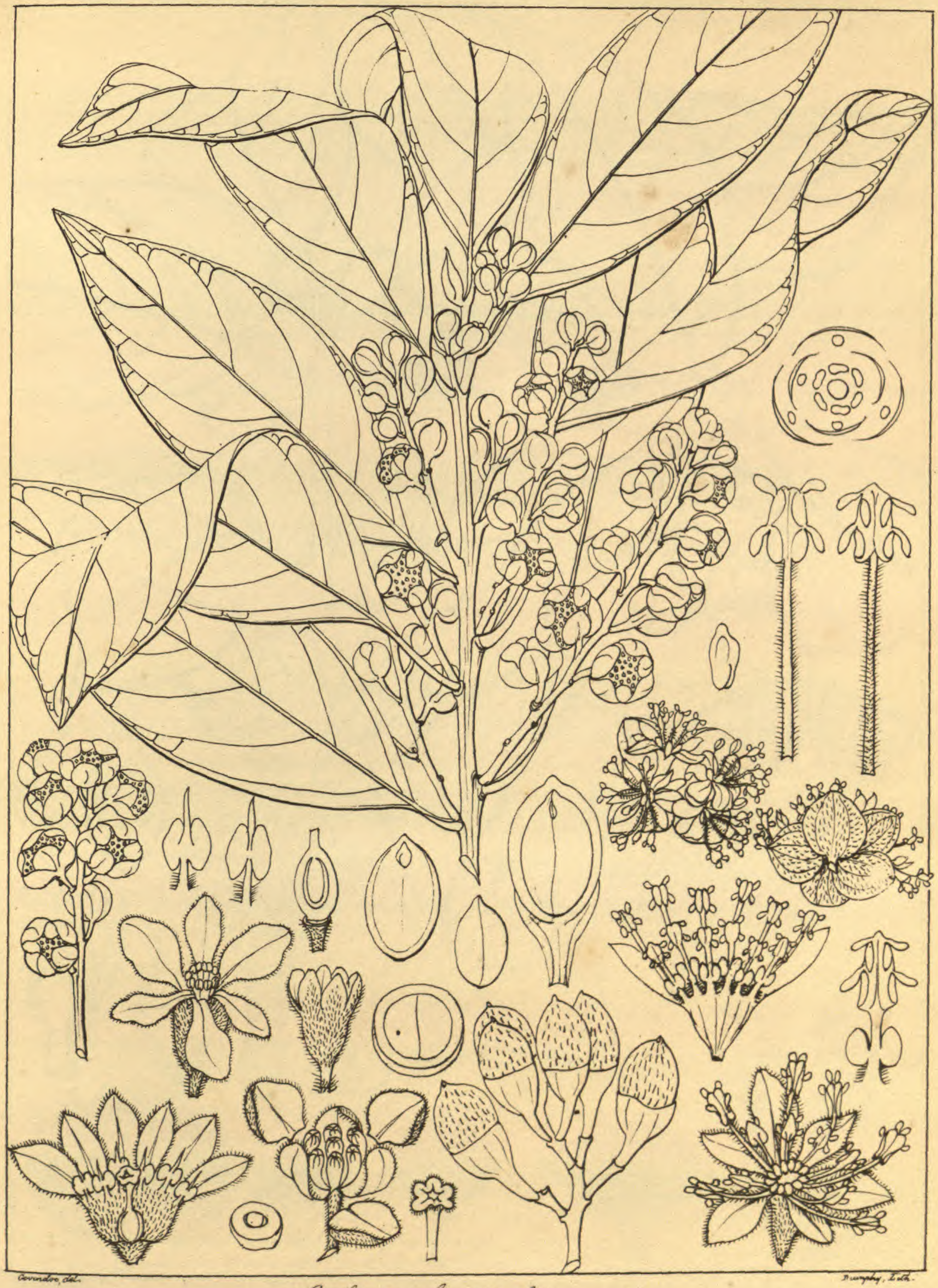
Govindoo, del. Dumphy, Lith.

Haasia Wightii (Nees)

Roxburghianae

Govindoo, del. Dumphy, Lith.

Sassafras Parthenoxylon (Nees)



Govindoo, del. Dumphy, Lith.

Cylicodaphne Wightiana (Nees)

Govindoo del. Dumphy, lith.

Tetranthera tomentosa (Roxb.)

Tetranthera ligustrina (Nees)

Govindoo, del. Dunphy, lith.

Tetranthera Panamanja (Ham. Nees)

Govindoo, del. Dumphy, Lith.

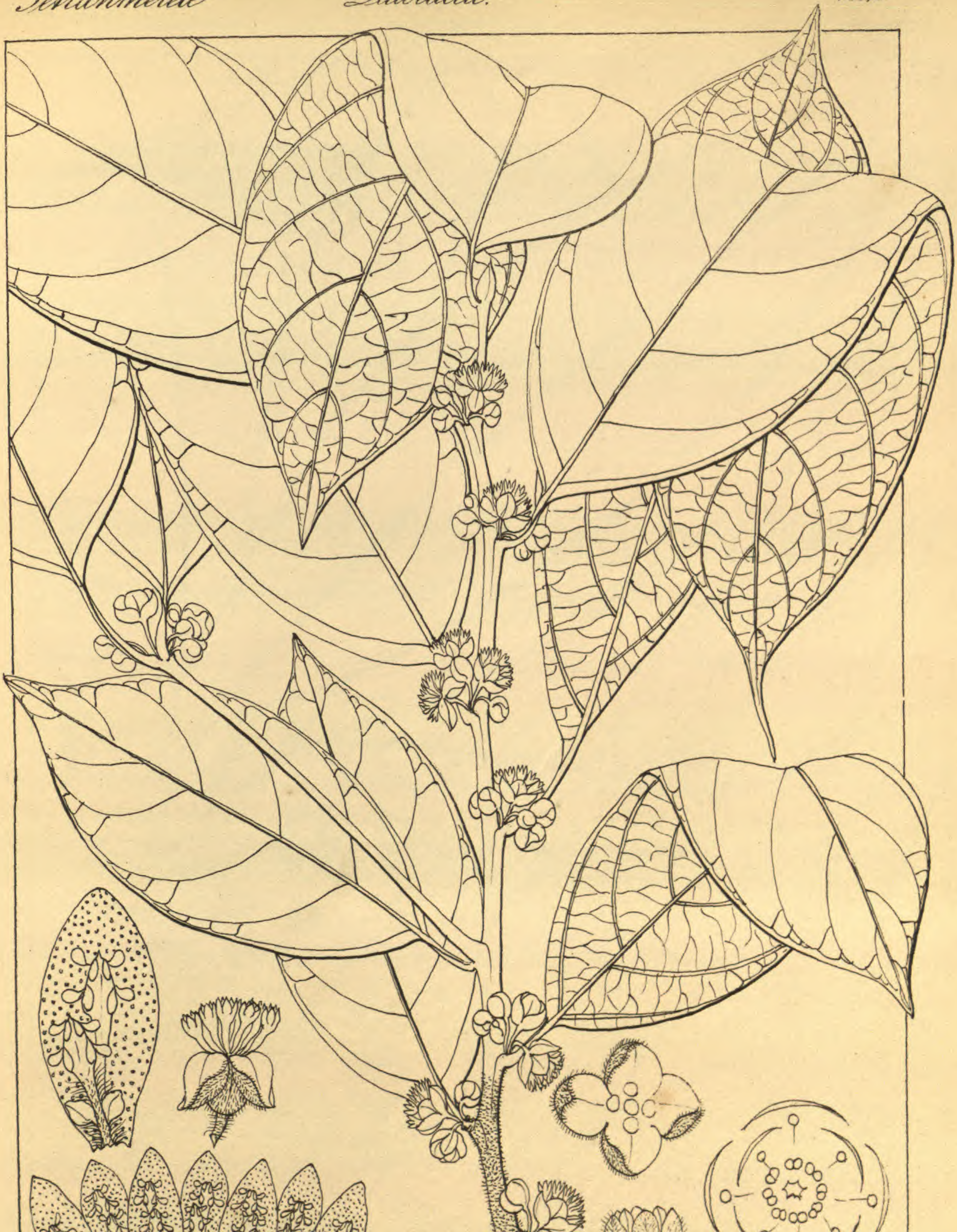
Lepidadenia Wightiana (Nees)

Govindoo, del. Dunphy, Lith.

Lepidadenia glabrata (R.W.)

Govindoo, del. Dunphy, lith.

Lepidadenia ovalifolia (R.W.)



Govindoo, del. Dumphy, Lith.

Lepidadenia Neesiana (R.W.)

Govindoo, del. Dumphy, Lith.

Actinadaphne augustifolia (Nees)

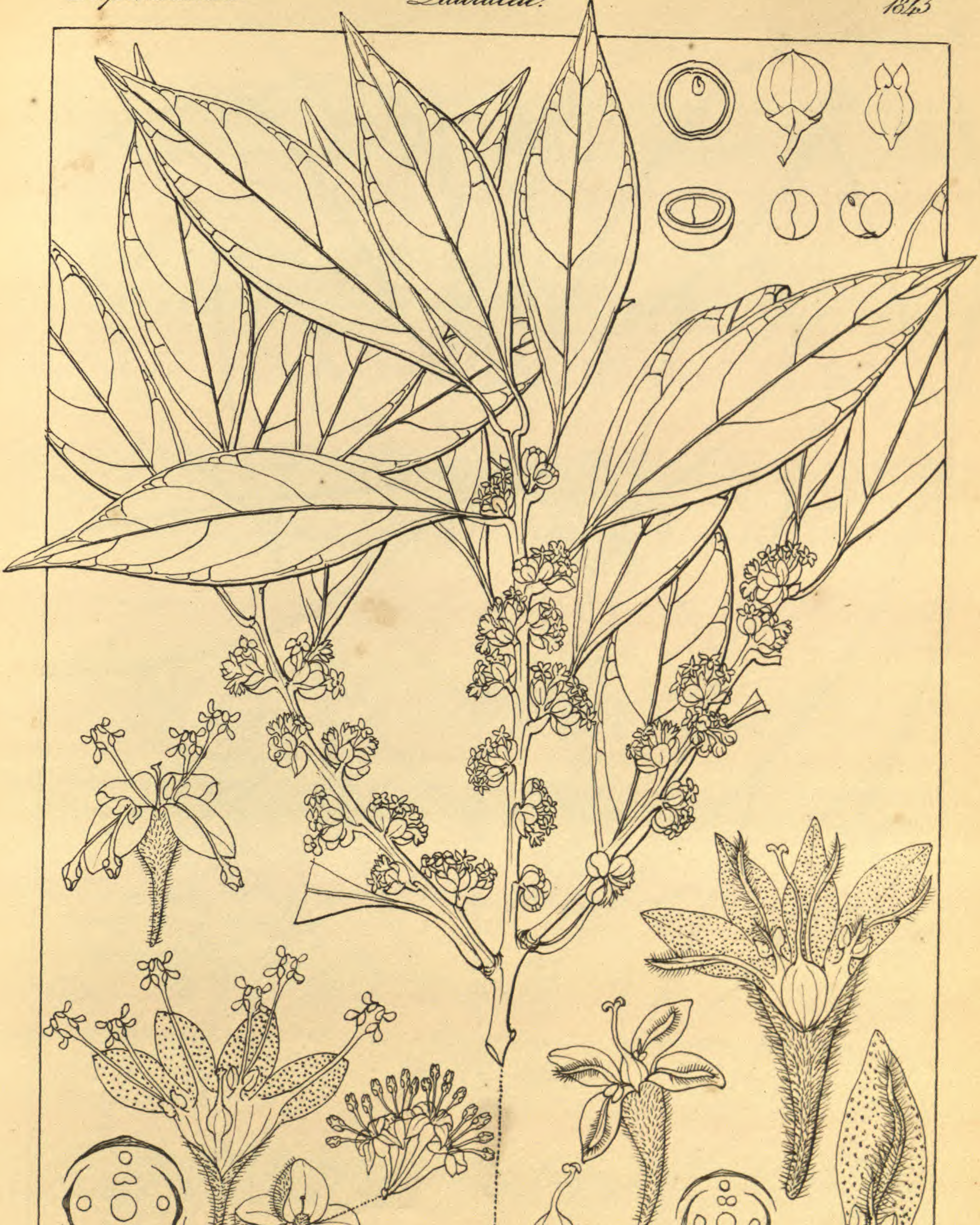
Actinodaphne speciosa (Nees)

Govindoo, del. Dunphy, lith.

Actinodaphne molochina (Nees)

Govindoo, del. Dunphy, Lith.

Litsæa Ceylanica ♀ (Nees)

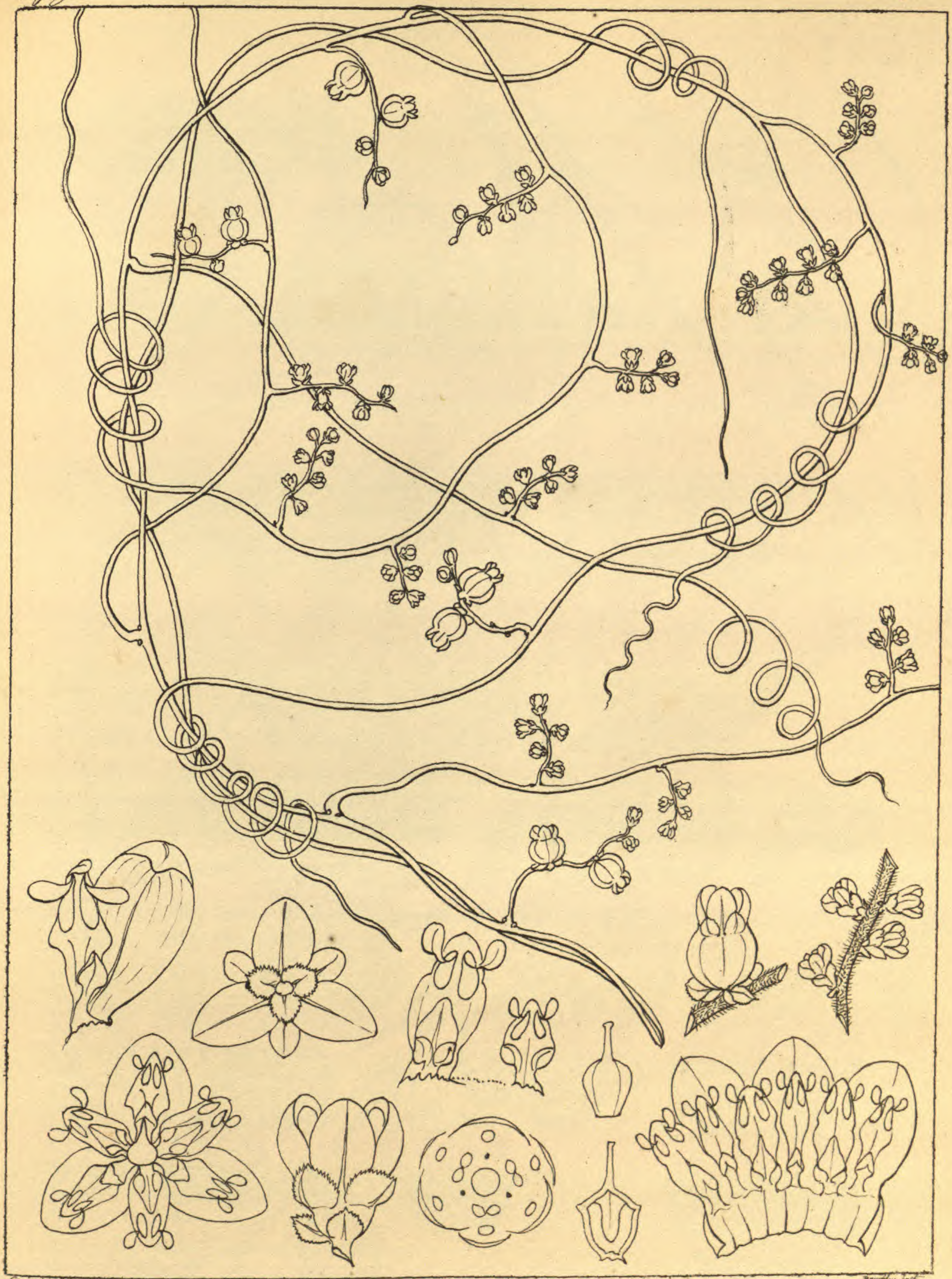


Govindoo, del. Dumphy, Lith.

Litsæa oblonga (Nees)

Govindoo, del. Dunphy, lith.

Lepidadenia Griffithii (R.W.)



Govindoo, del. Dumphy, Lith.

Cassyta filiformis (Linn.)

Govindoo, del. Dunphy, Lith.

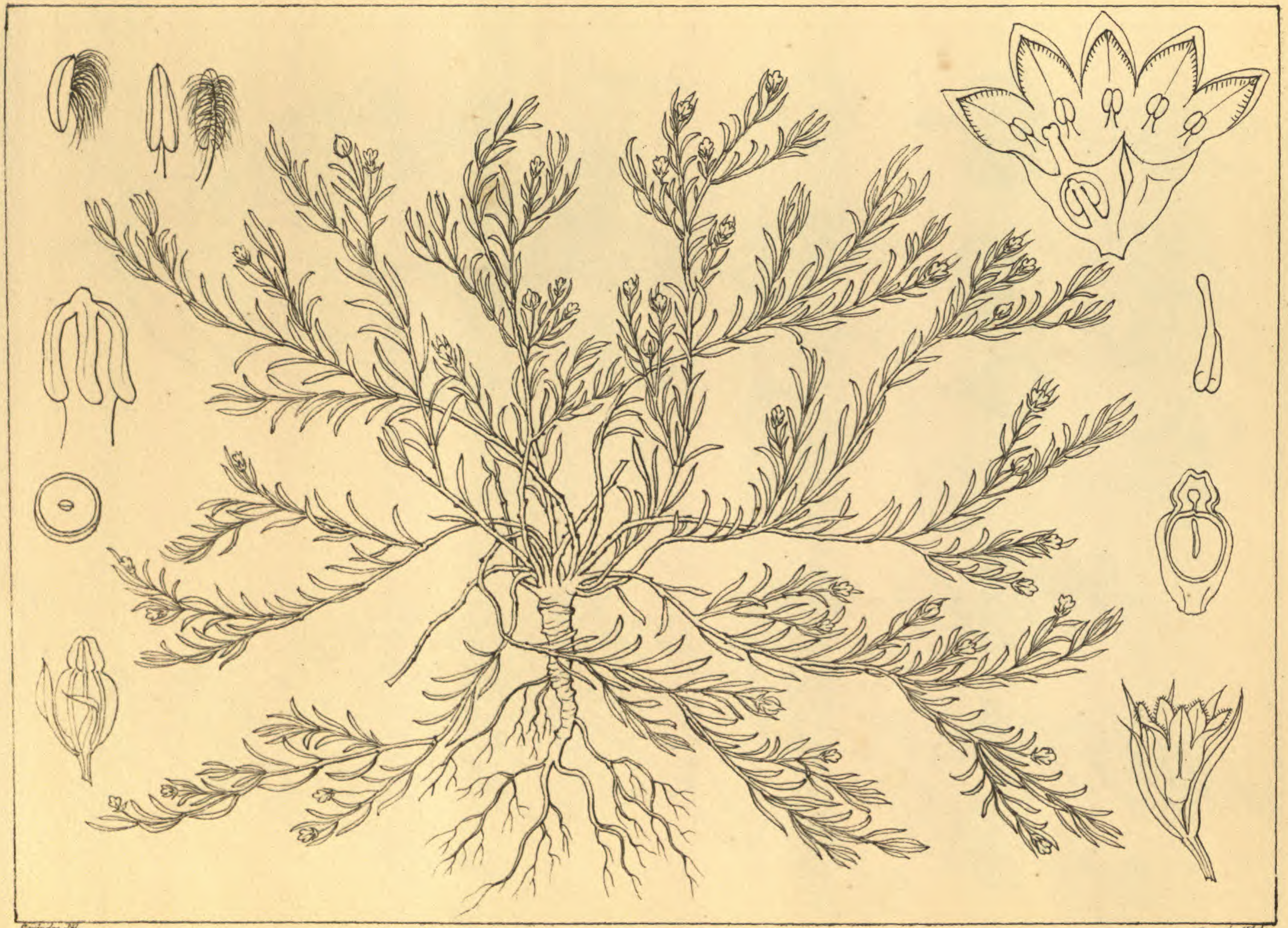
Schmidia bicolor (R.W.)

Casearia elliptica (Willd.)

Gyrinops Walla (Gært)

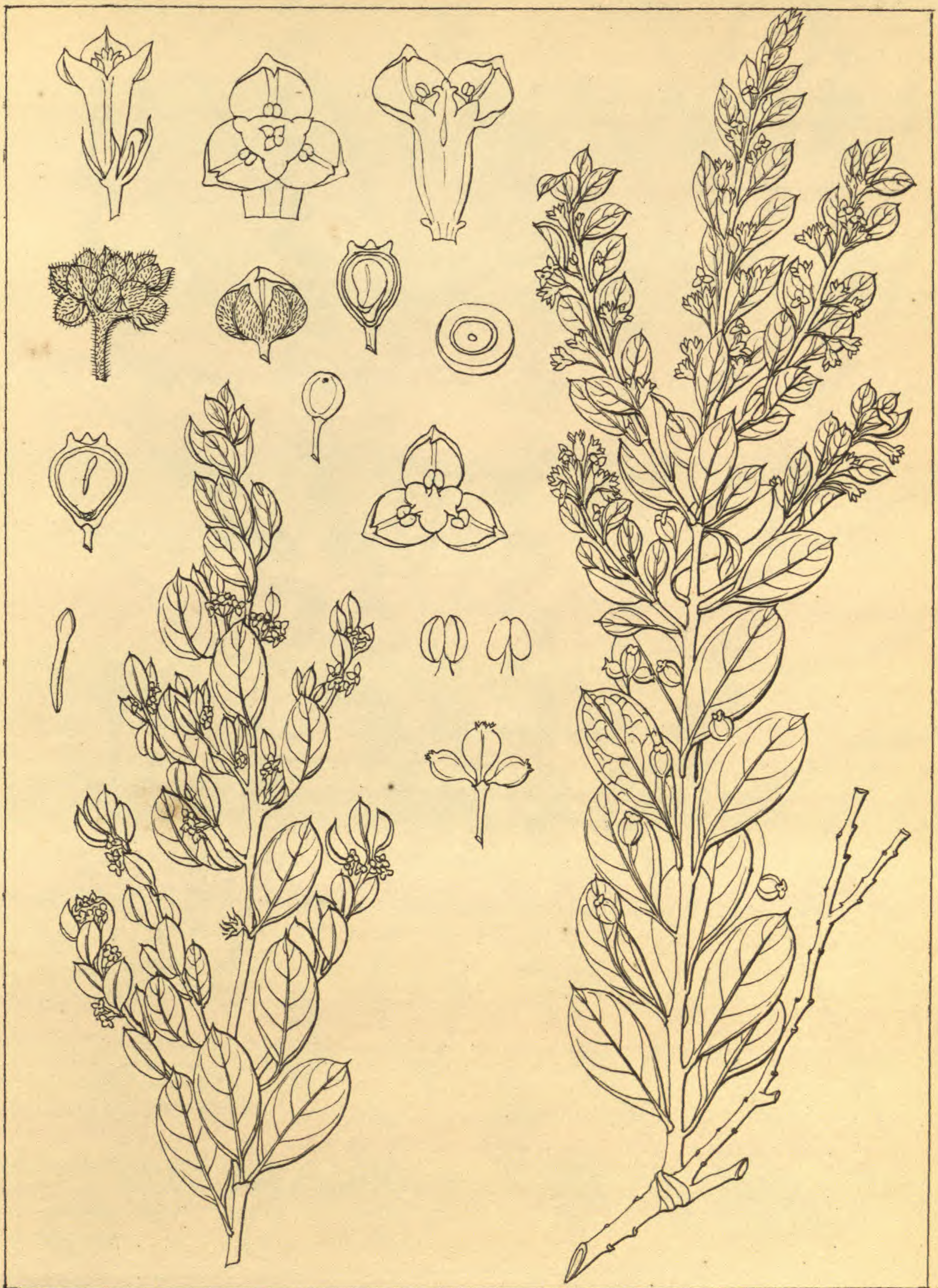
Govindoo, del. Dunphy, lith.

Blackwellia tetrandra (R.W.)



Govindoo, Del. Dumphy, Lith.

Thesium Wightianum (Wall.)



Osyris Wightiana (Wall)

Govindoo, del. Dumphy, Lith.

Sarcostigma Kleinii (W. & A.)

Gevindoo del. Dumphy, lith.

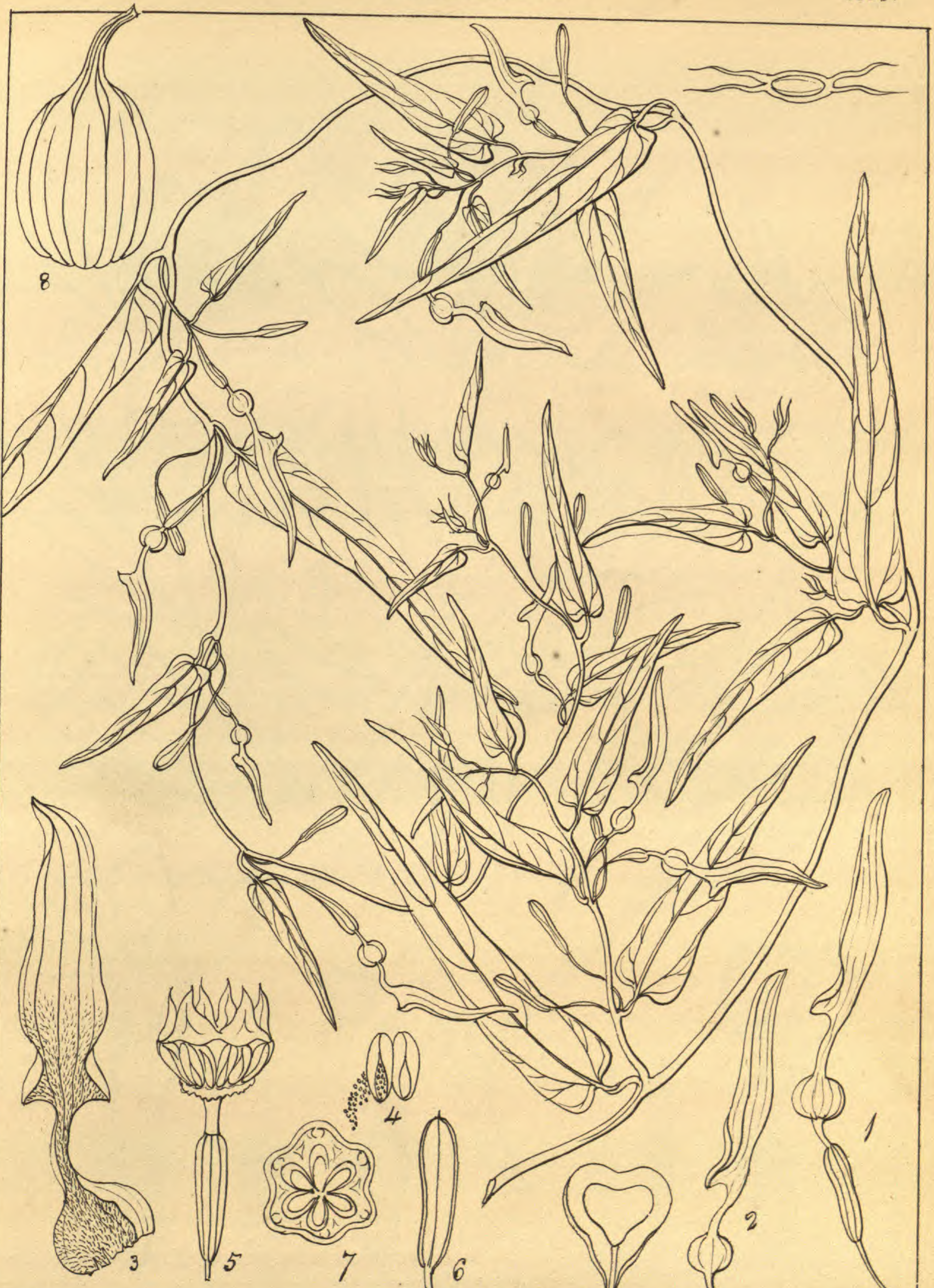
Hernandia Sonora (Lin)

Govindoo, del. Dumphy, Lith.

Elæagnus latifolia (Linn)

Govindoo, del. Dumphy, Lith.

Pyrrhosia Horsfieldii (Blume)



Govindoo, del. Dunphy, Lith.

Aristolochia lanceolata (R.W.)

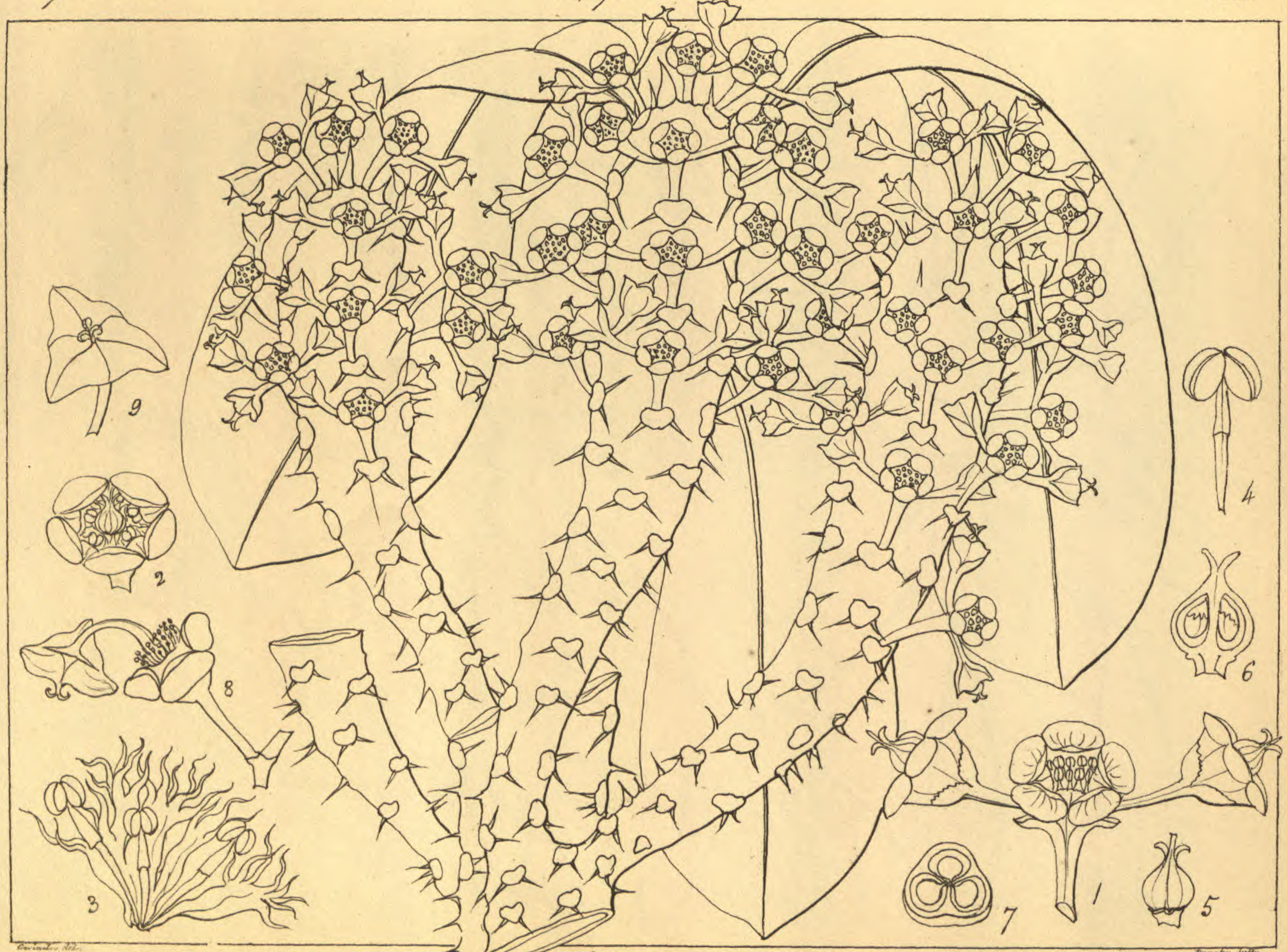
Govindoo, del. Dumphy, Lith.

Gnidia eriocephala (Meisn)

Govindoo, del. Dunphy, lith.

Gnidia Sisparensis (Gard)

Cansjera Rheedii (Gmel)



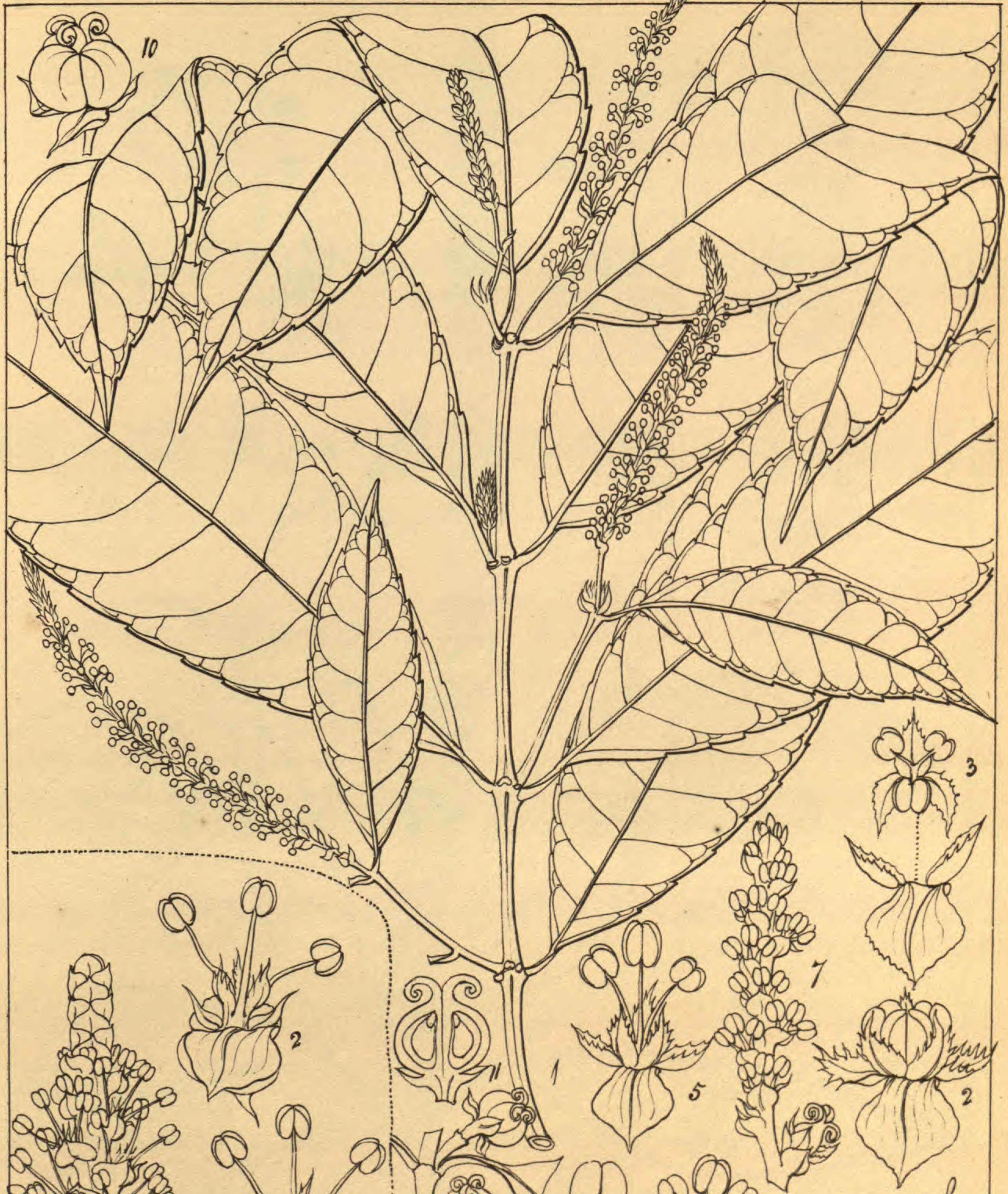
Euphorbia Nivulia (Hamil)

Govindoo, del. Dumphy, Lith.

Euphorbia trigona (Roxb)

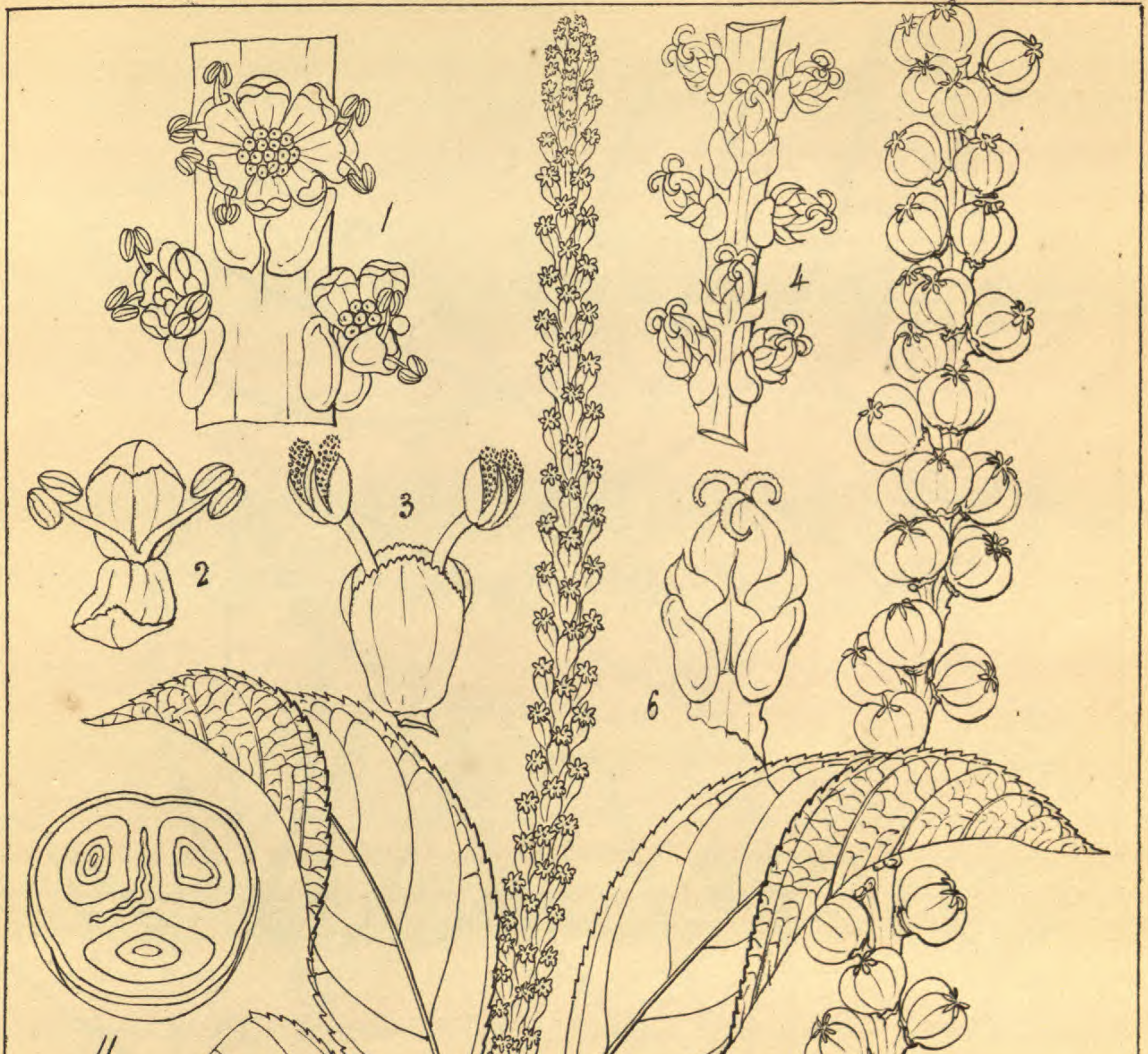
Gorindoo, del. Dumphy, lith.

Euphorbia Rothiana (Spreng.)



Gavindoo, del. Dumphy, lith.

Excœcaria crenulata (R.W.)
B. E. Agallocha (Willd.)



Govindoo, Del. Dunphy, Lith.

Falconera Malabarica (R.W.)

Govindoo, del. Dumphy, lith.

Gelonium lanceolatum (Roxb)

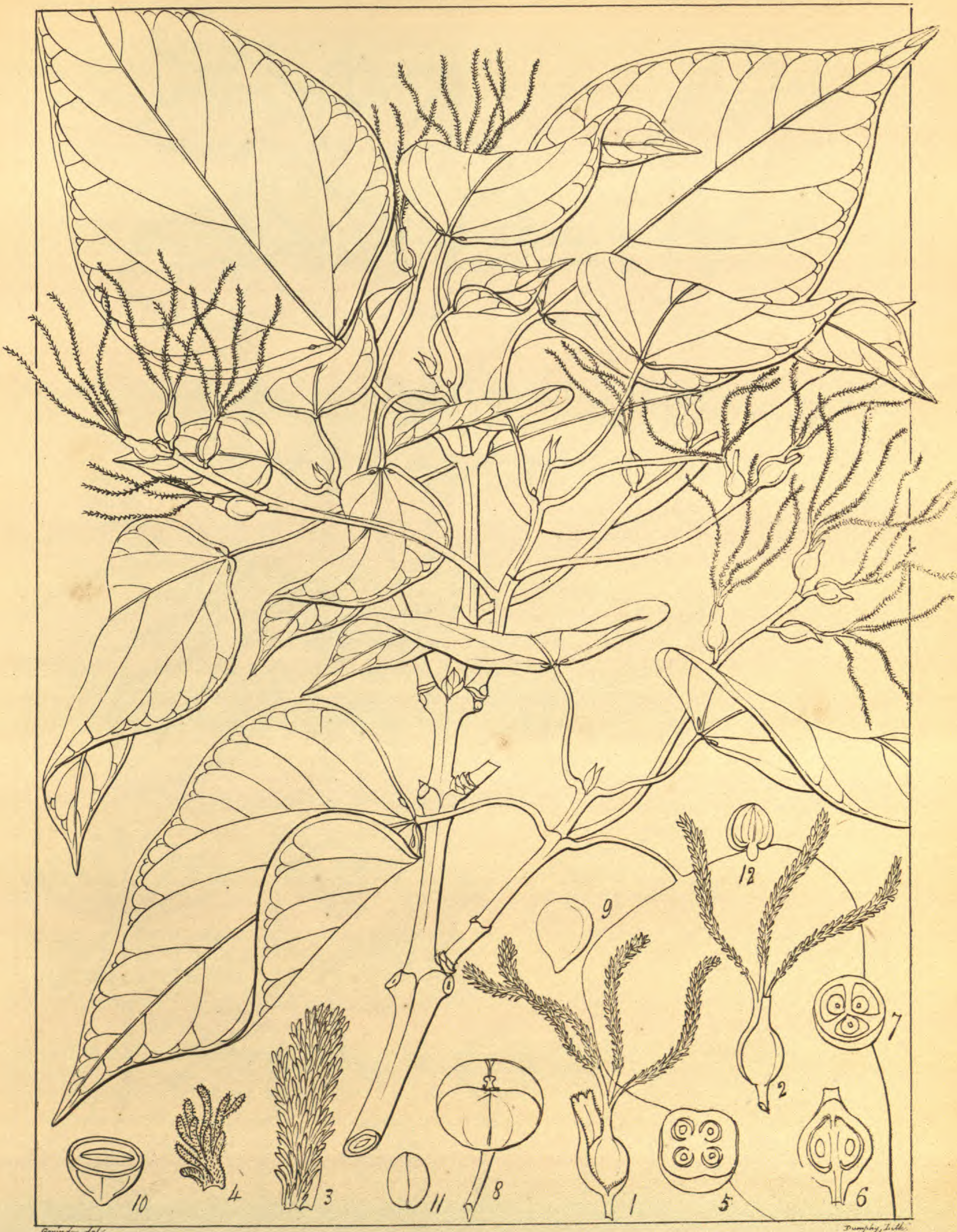
Govindoo, del. Dumphy lith.

Adelia nereifolia (Roxb.)

Adelia retusa (R.W.)

Gowindoo, del. Dunphy, Lith.

Trewia nudiflora ♂ (Linn.)



Govindoo, del. Dumphy, Lith.

Irewia nudiflora ♀ (Linn)

Govindoo, del.   Dumphy, lith.

Hemicylia sepiaria (W.&A.)

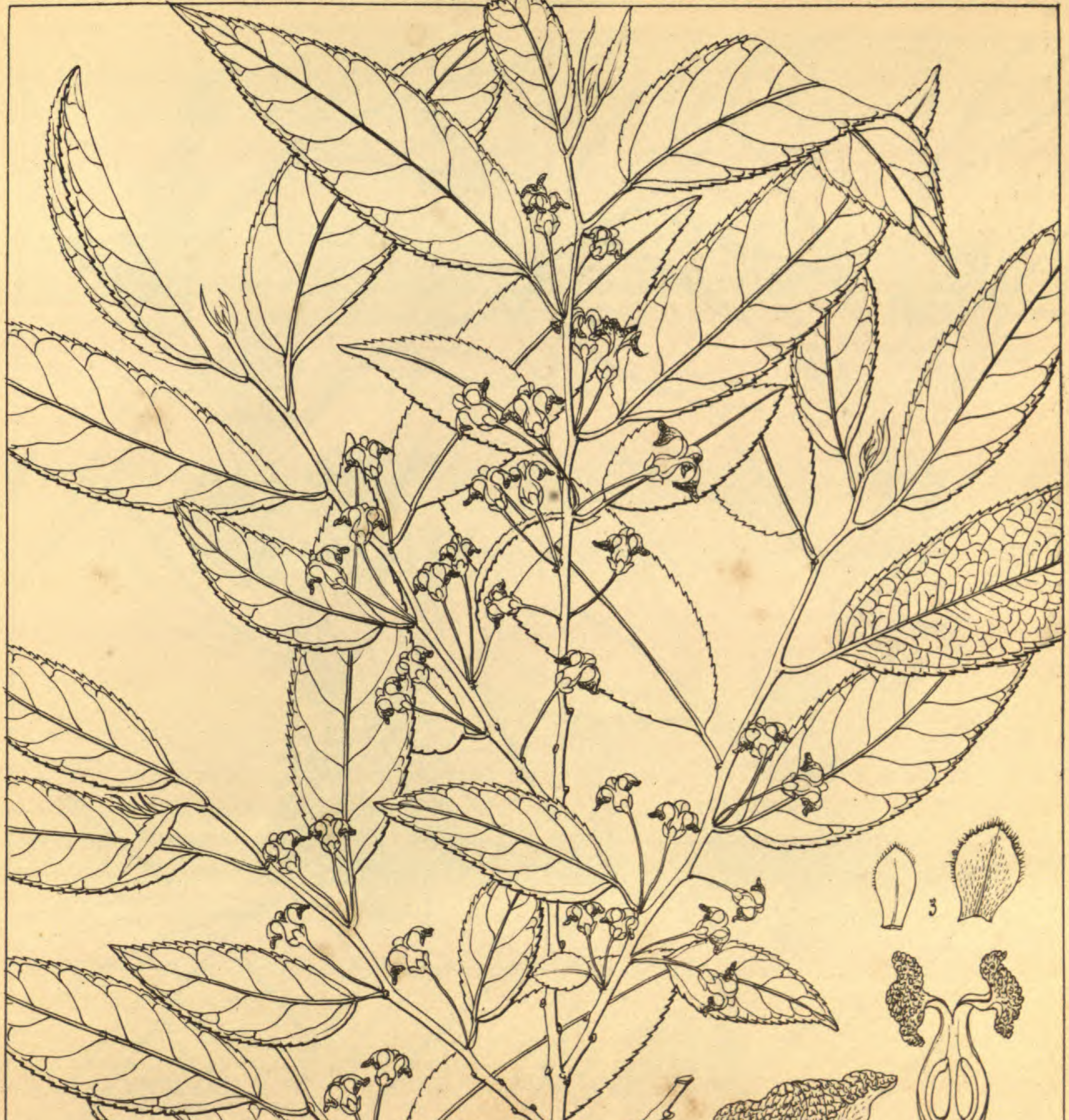
Govindoo, del. Dumphy, lith.

Rottlera fultata (Roxb.)

Govindoo, del. Dumphy, Lith.

Croton umbellatum (Willd)

Fluggea leucopyrus (Willd)



Govindoo, del. Dunphy, Lith.

Putranjiva Roxburghii (Wall)

Gorrudo, del. Dunphy, Lith.

Sarcococca trinervia (R.W.)

Govindoo Dumphy, Lith.

Gonghia Neilgherrensis ♂ (R.W.)

Govindoo, del. Dunphy, Lith.

Gonghia Neilgherrensis ♀ (R.W.)

Coriadoo, Del. Dumphy, Lith.

Microelus Roeperianus (W. & A.)

Govindoo, del. Dumphy, Lith.

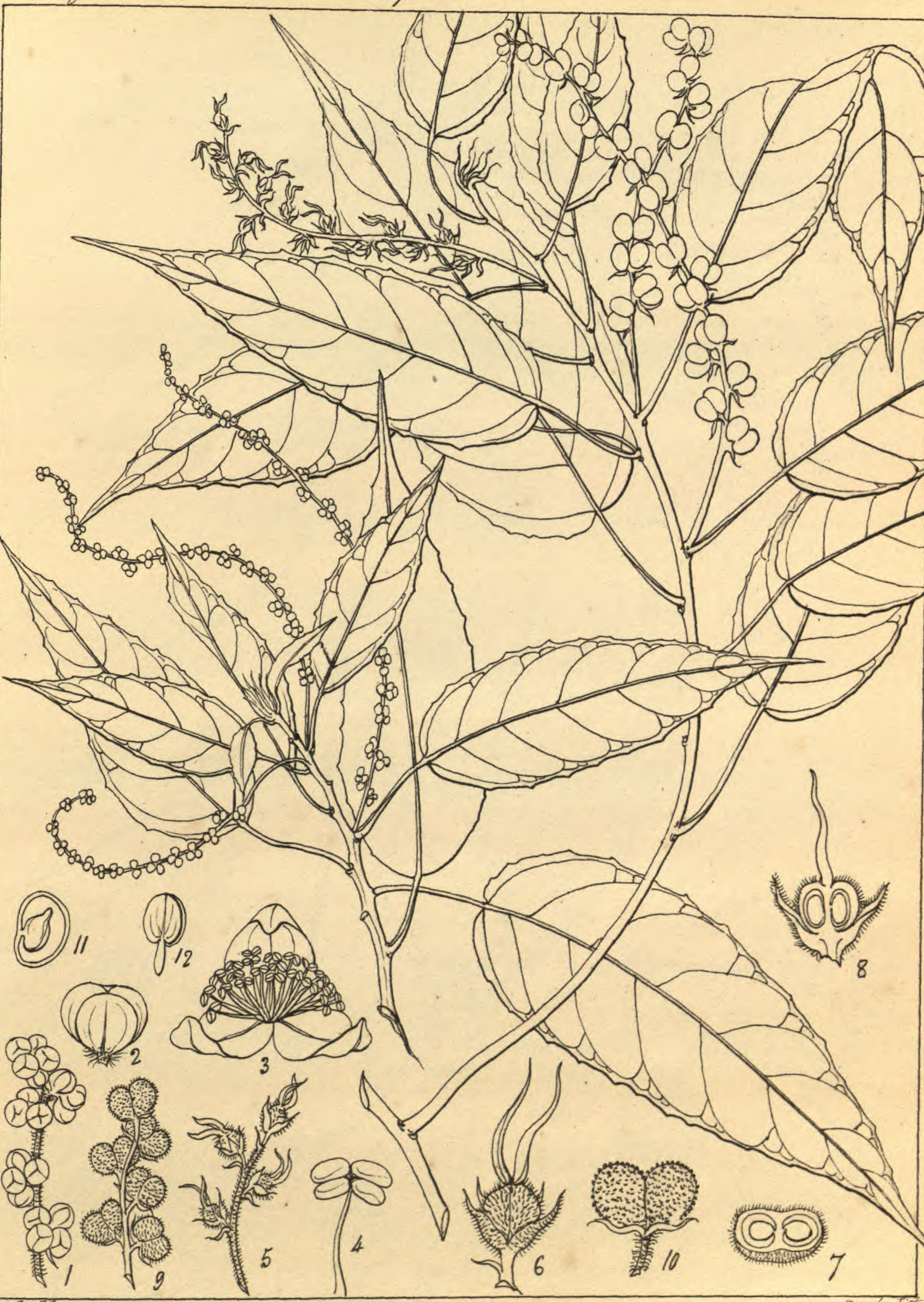
Dalechampsia velutina (R.W.)

Govindoo, del. Dumphy, Lith.

Dalechampsia Indica (R.W.)

Govindoo, del. Dumphy, Lith.

Macaranga Indica (R.W.)



Govindoo, del. Dumphy, Lith.

Claoxylon digynum (R.W.)

Gonnaloo, del. Dumphy, Lith.

Baliospermum polyandrum (R.W.)

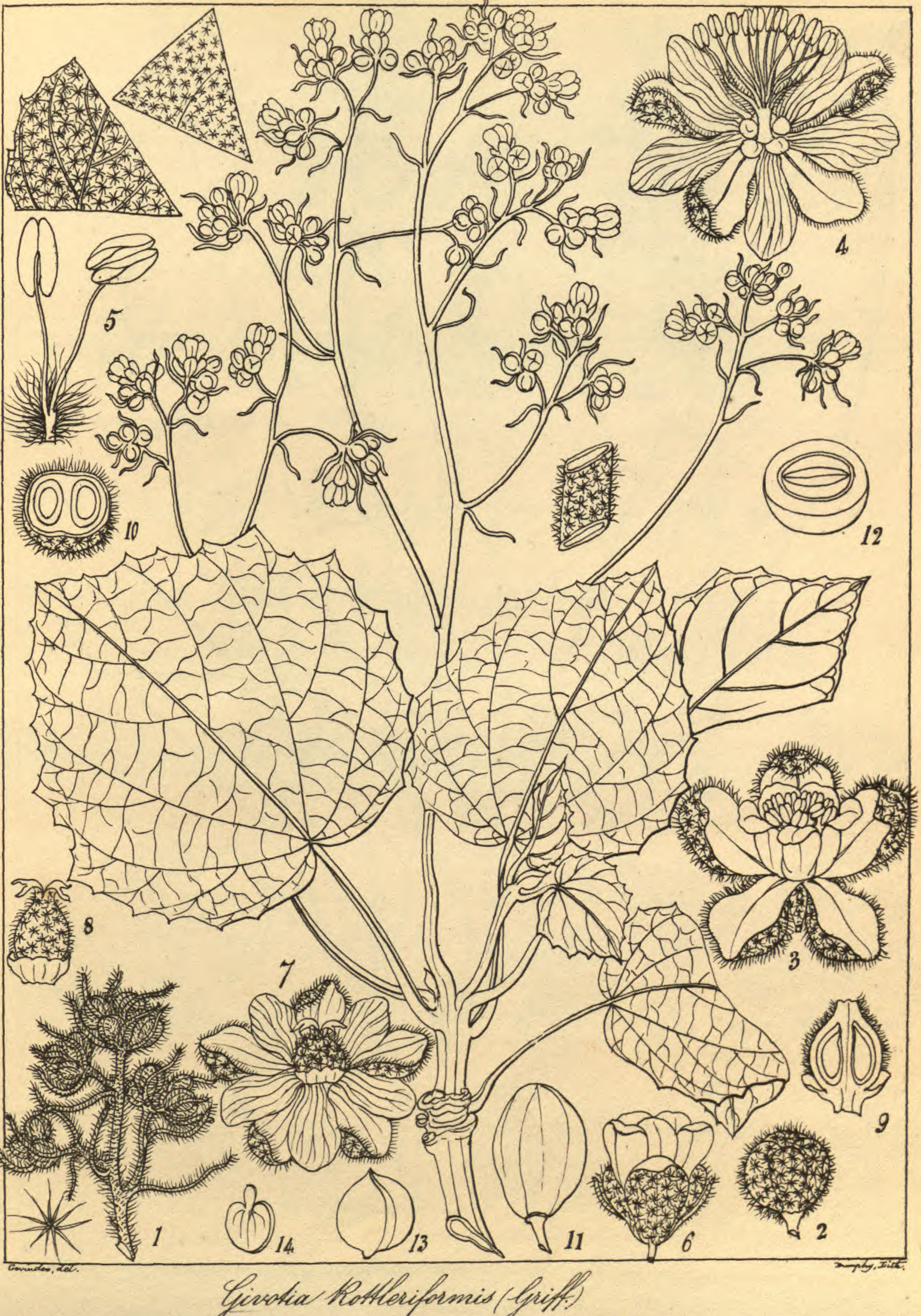
Claoxylon muricatum (R.W.)

Govindoo del. Dunphy, Lith.

Sarcoclinium longifolium ♂ (R.W.)

Gonsalves, del. Dunphy, lith.

Sarcoclinium longifolium ♀ (R.W.)

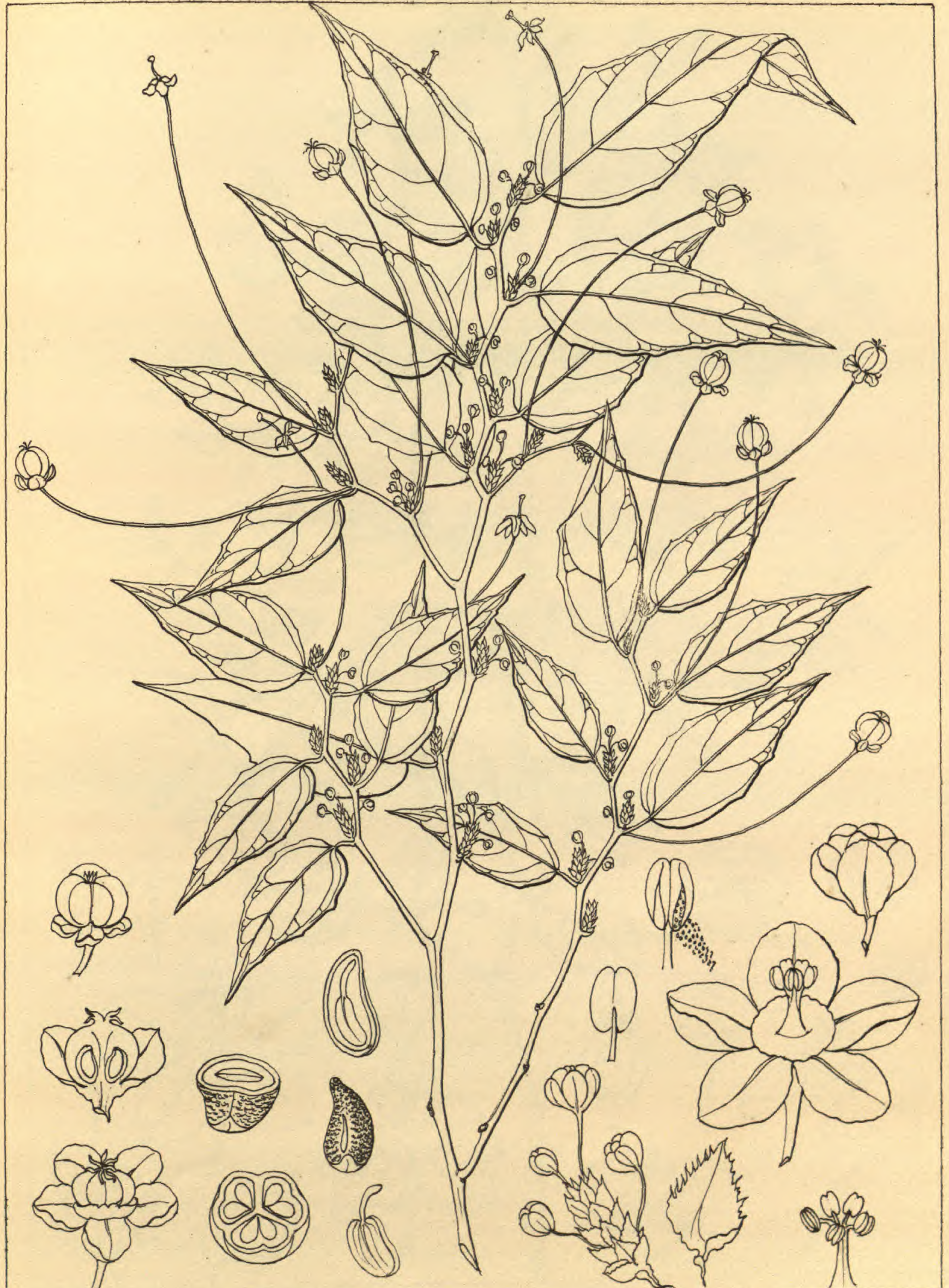


Gorindoo, del. Murphy, lith.

Givotia Rottleriformis (Griff.)

Govindoo, del. Dunphy, Lith.

Trigonostemon heteranthum (R.W.)

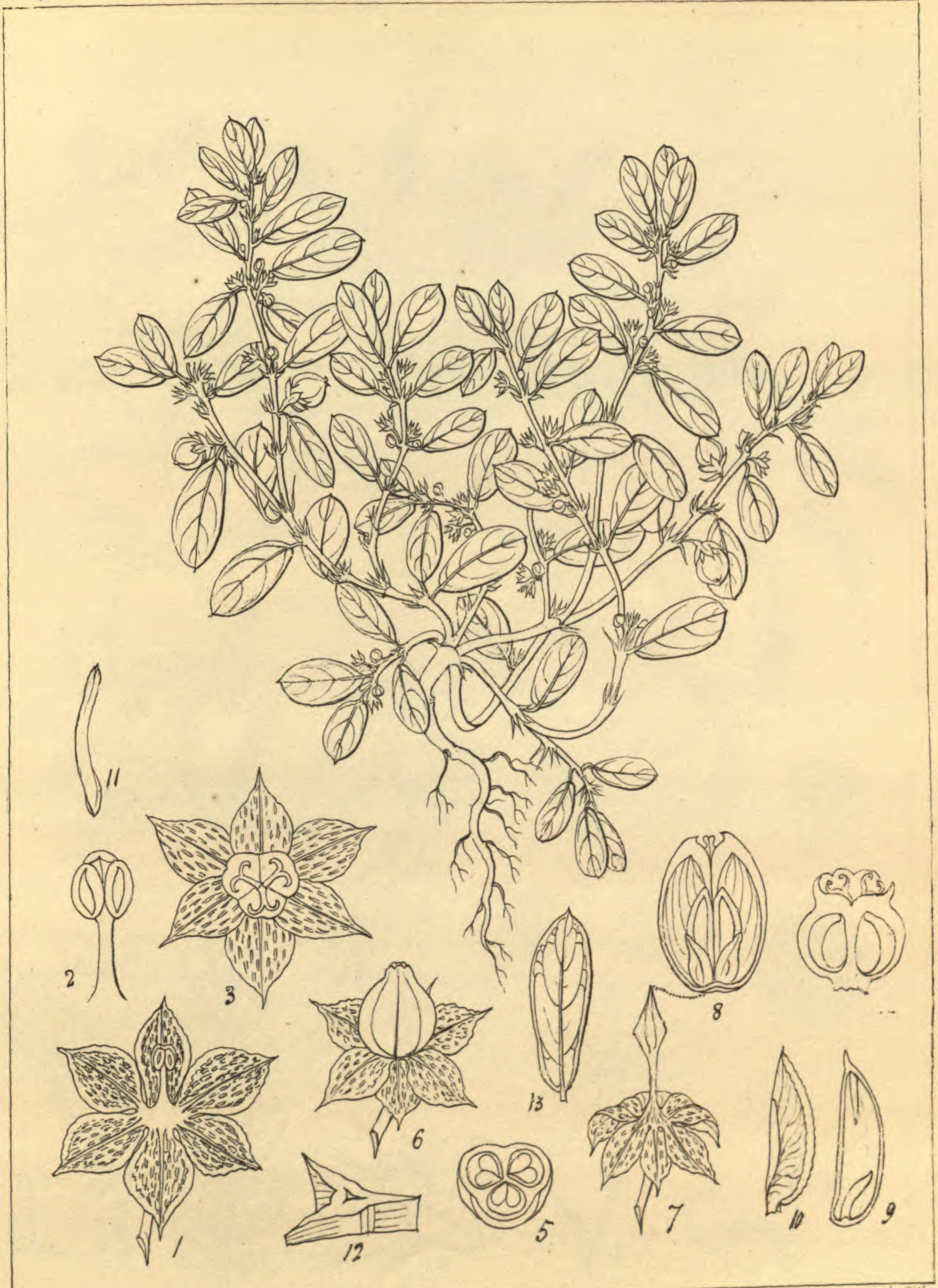


Govindoo, del. Dumphy, Lith.

Peltandra longipes (R.W.)

Govindoo, del. Dumphy, Lith.

Peltandra parvifolia (R.W.)



Govindoo del. Dunphy, Lith.

Agyneia bacciformis (Juss fil.)

Govindoo, del. Dunphy, Lith.

Phyllanthus Niruri (Linn)

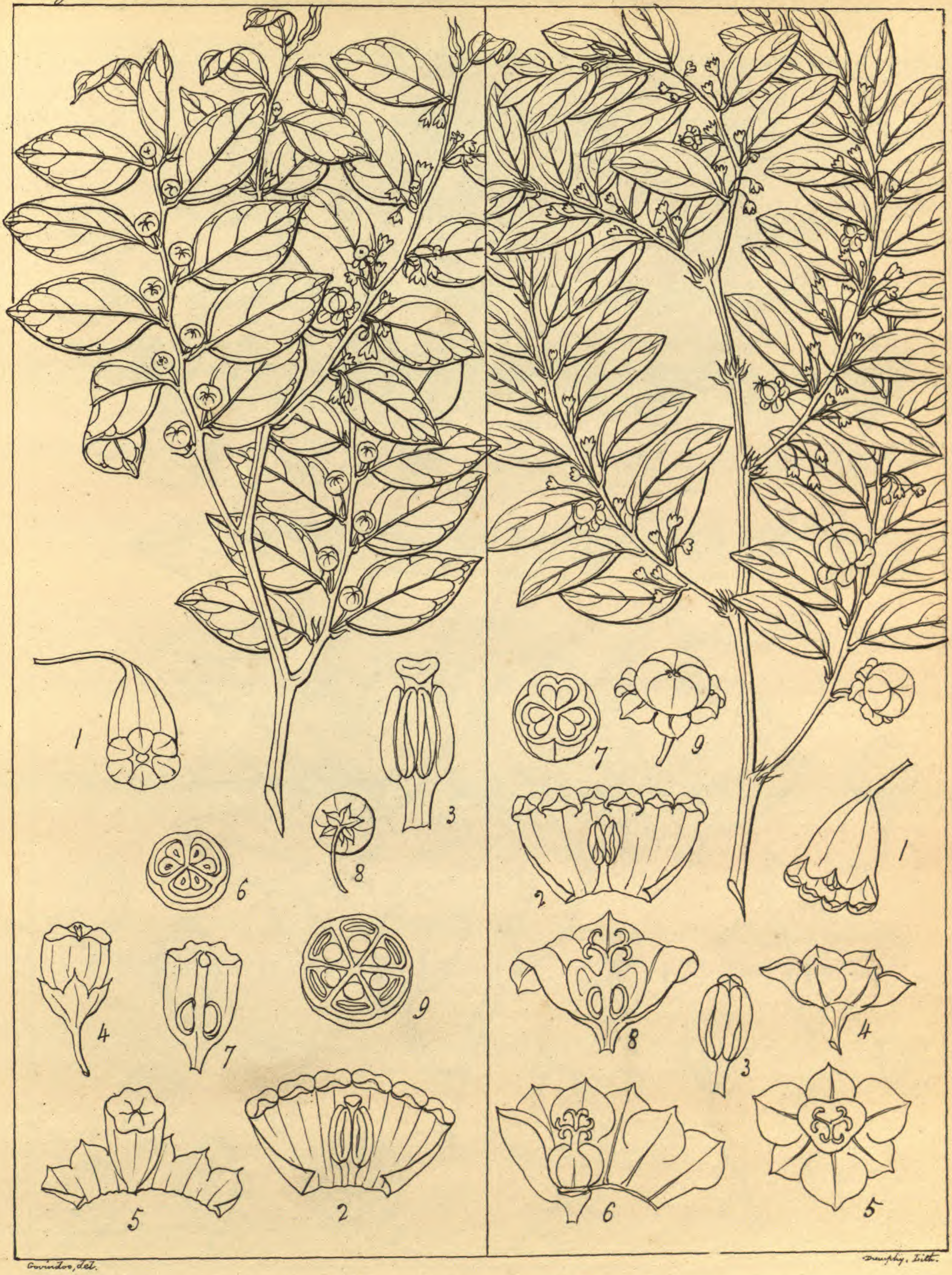
I. Phyllanthus Rheedii (R.W.) II. P. polyphyllus (Willd.)
III. P. Madraspatenus var. (Lin) IV. P. leprocarpus (R.W.)

Govindoo, del. Dumphy, Lith.

Emblica officinalis (Gært.)

Govindoo, del. Dunphy, Lith.

Melanthesa truncata (R.W.)

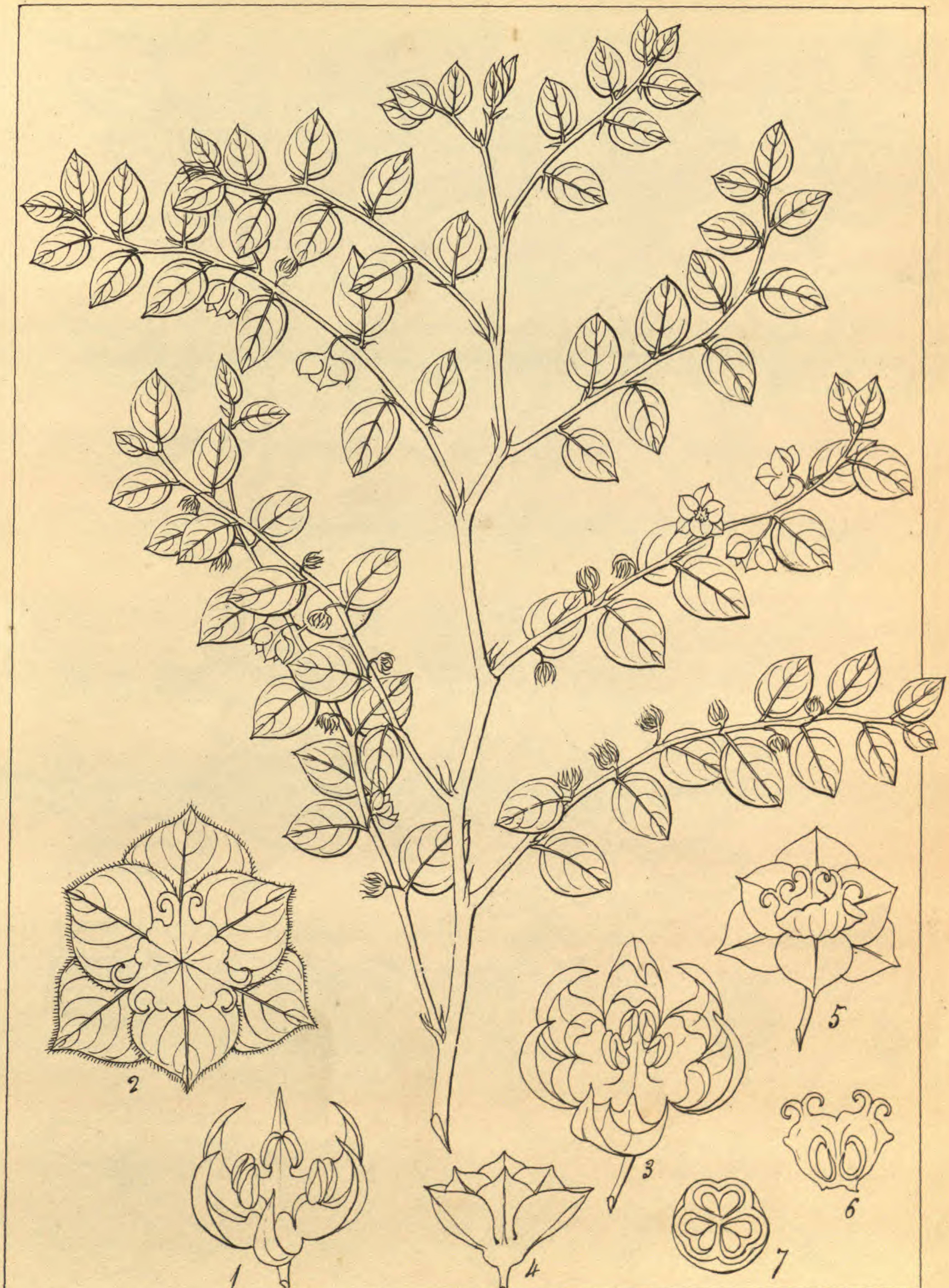


Govindoo, del. Dumphy, Lith.

Melanthesa rhamnoides (Bl.) Melanthesa obliqua, (R.W.)

Govindoo, del. Dumphy, lith.

Anisonema multiflora (R.W.)



Govindoo, Del. Dumphy, Lith.

Ceratogynum rhamnoides (R.W.)

Govindoo, del. Dumphy, Lith.

Macræa Rheedii (R.W.)

I. Macræa oblongifolia (R.W.) II. M. myrtifolia (R.W.)
III. M. Gardneriana (R.W.) IV. M. ovalifolia (R.W.)

Govindoo, del. Dumphy, lith.

Reidia floribunda (R.W.)

Govindoo, del. Dunphy, lith.

I. Reidia fimbreata (R.W.) II. R. latifolia (R.W.)
III. R. ovalifolia (R.W.) IV. R. polyphylla (R.W.)

Govindo, del. Dunphy, lith.

Glochisandra acuminata (R.W.)

Govindoo, del. Dumphy, Lith.

Glochidion ellipticum (R.W.)

Govindoo, del. Dunphy, Lith.

Glochidion arboreum (R.W.) Glochidium velutinum (R.W.)

Govindoo, del. Dumphy, lith.

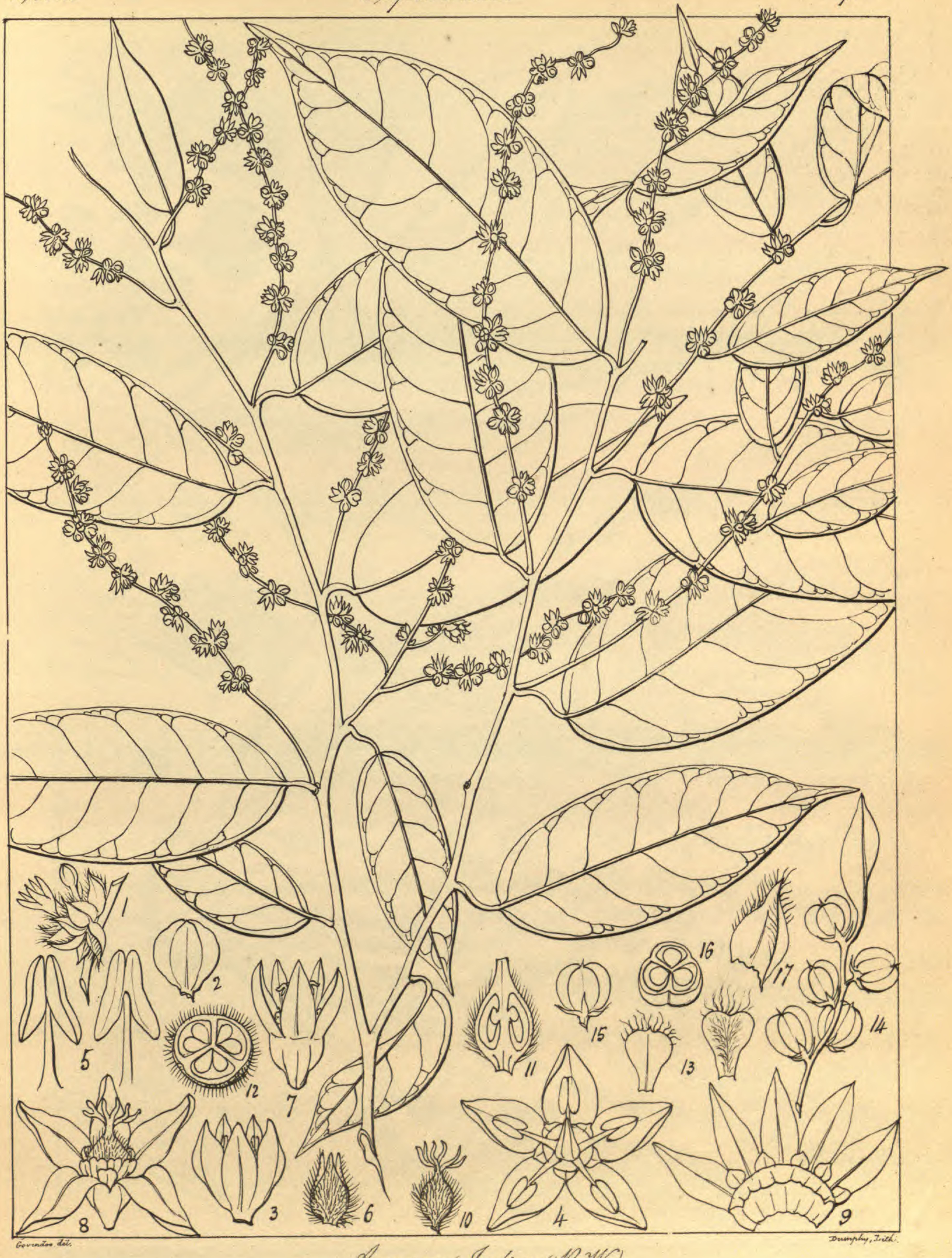
Gynoon triandrum (W. & A.)

Gavindoo, del. Dunphy, Lith.

Gynoon hirsutum (R.W.)

Govindoo, del. Dumphy, Lith.

Actephila Neilgherrensis (R.W.)



Govindoo del. Dumphy, lith.

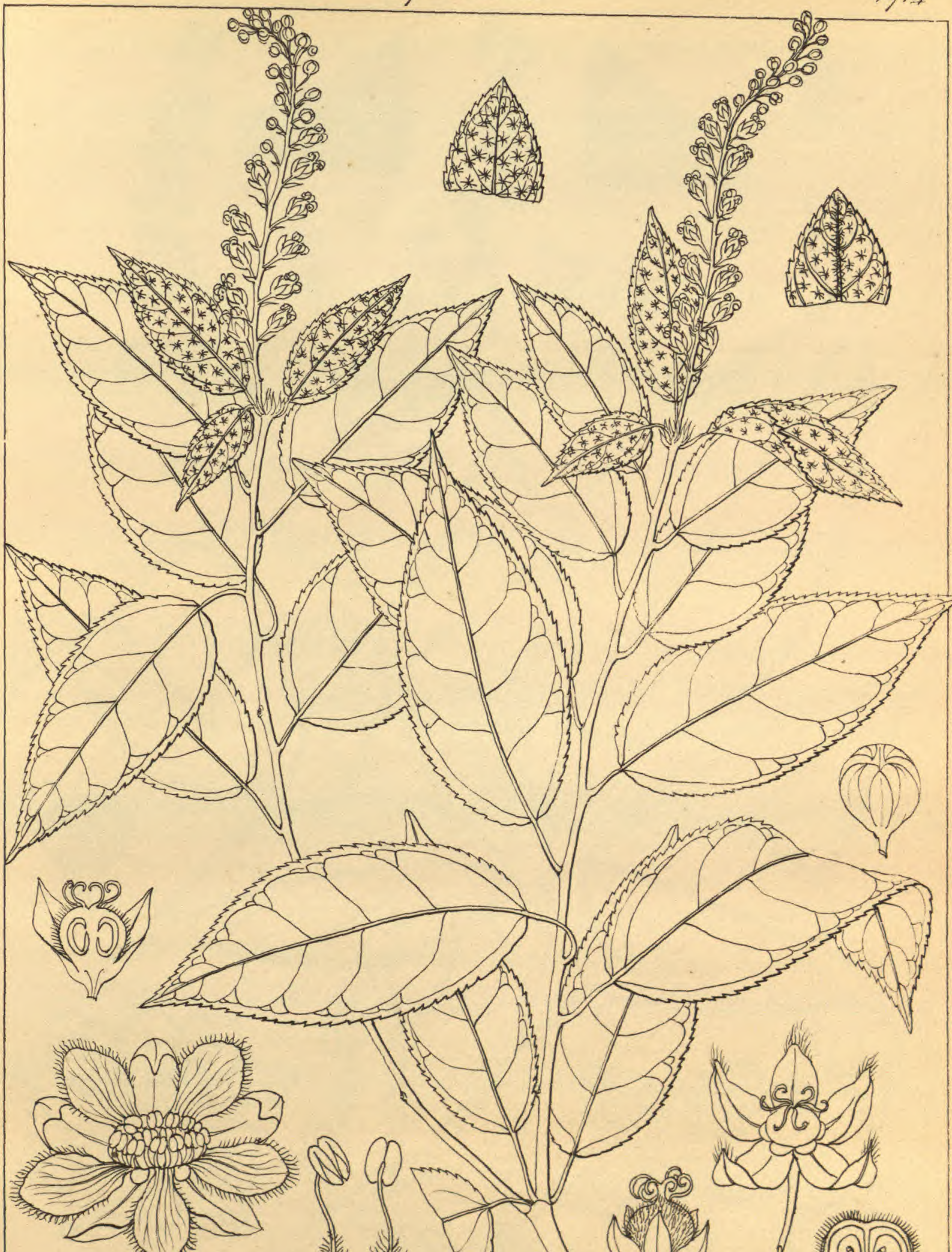
Amanaa Indica (R.W.)

Govindoo, del. Dunphy, Lith.

Pierardia macrostachys ♂ (W. & A.)

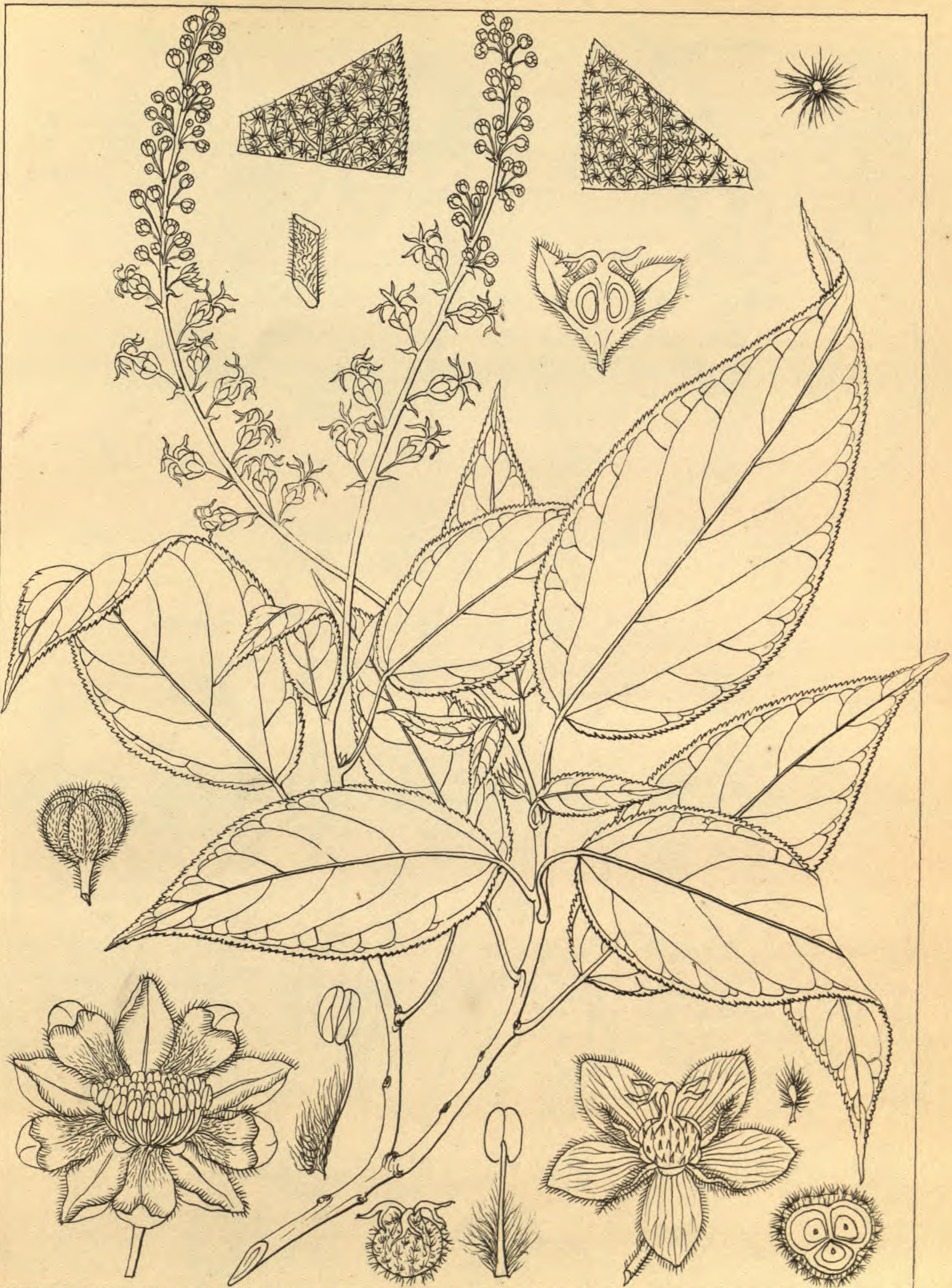
Govindoo, del. Dunphy, Lith.

Pierardia macrostachys ♀ (W. & A.)



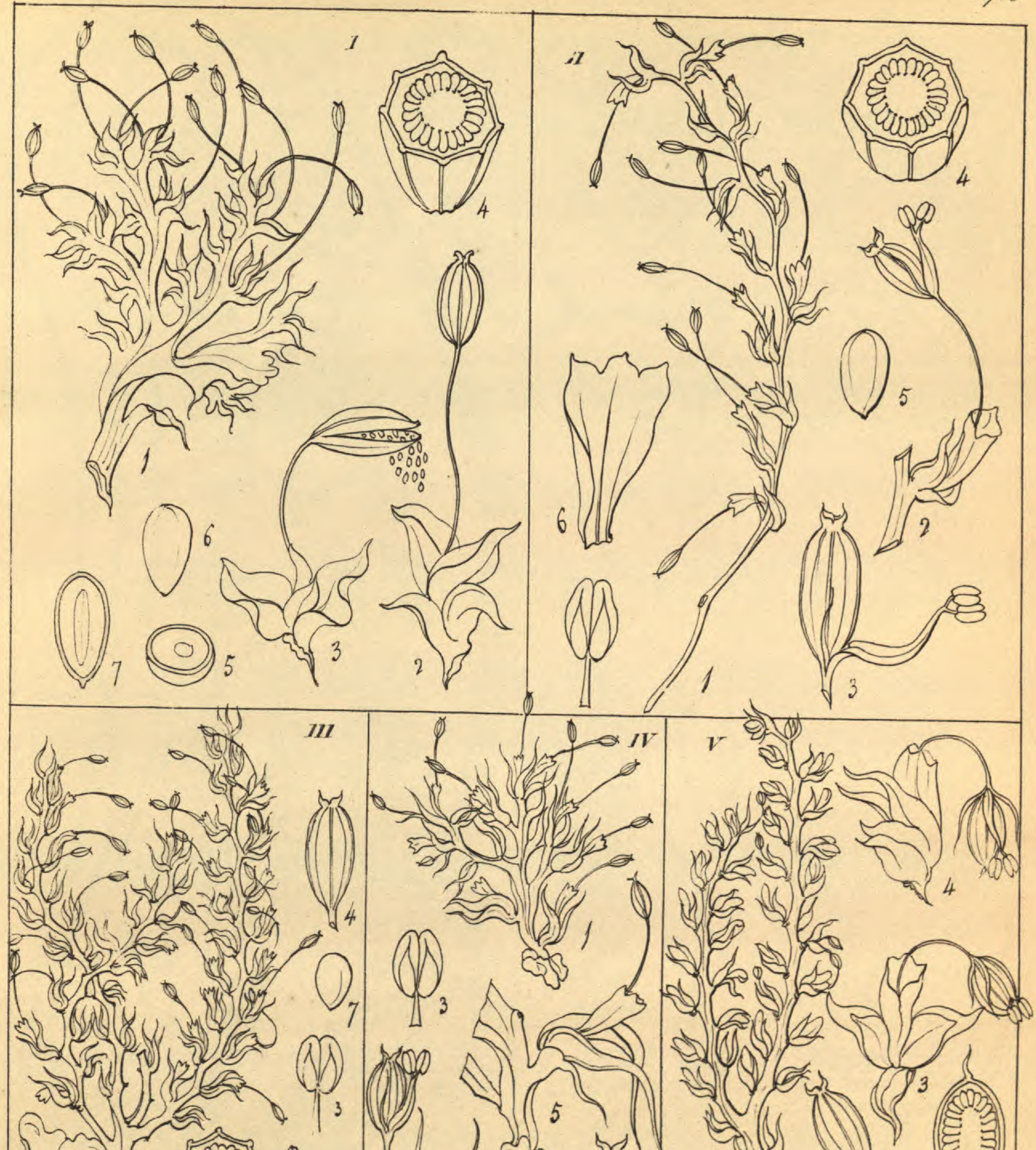
Govindoo, del. Dumphy, Lith.

Tiglium Klotchianum (R.W.)

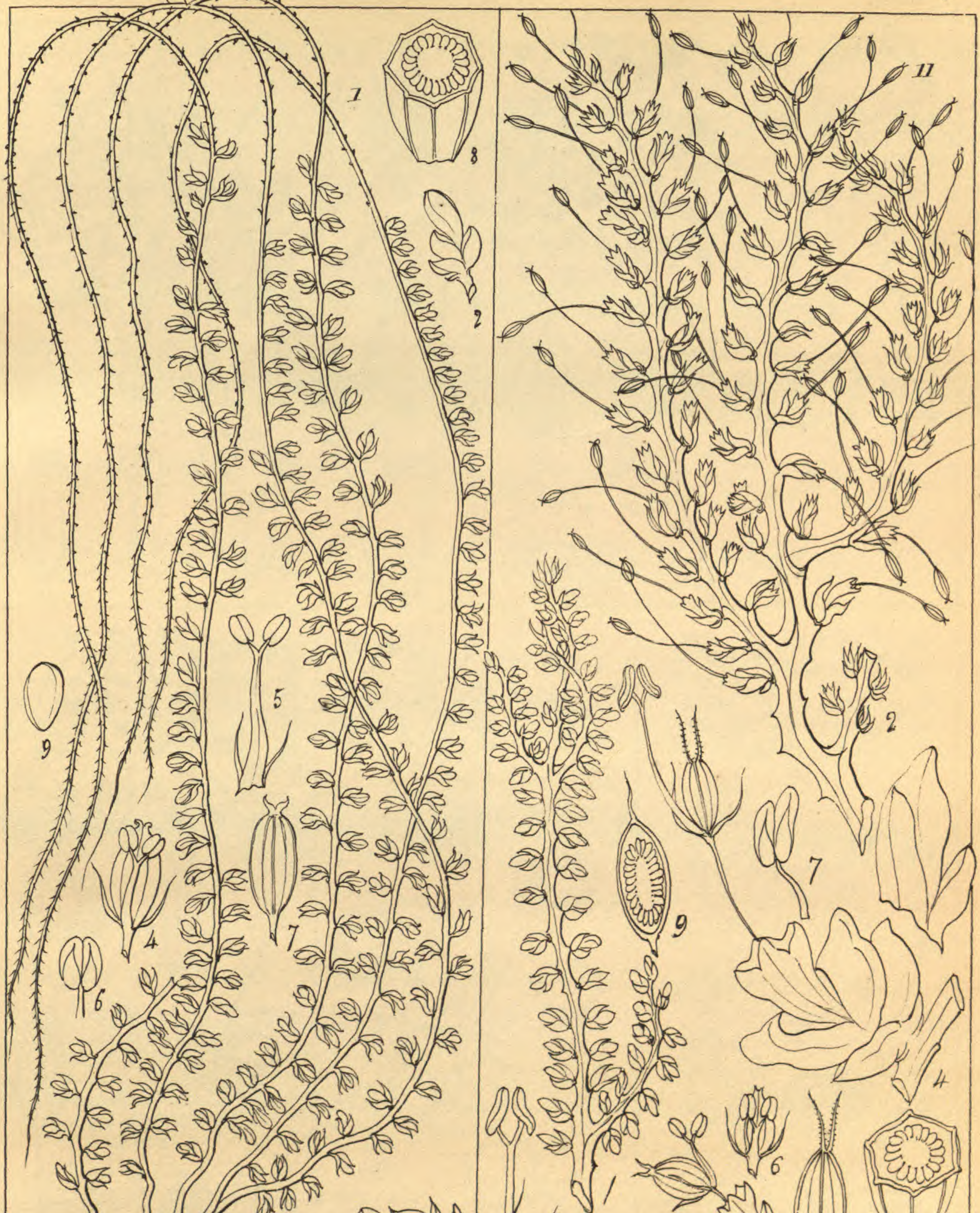


Govindoo, del. Dumphy, lith.

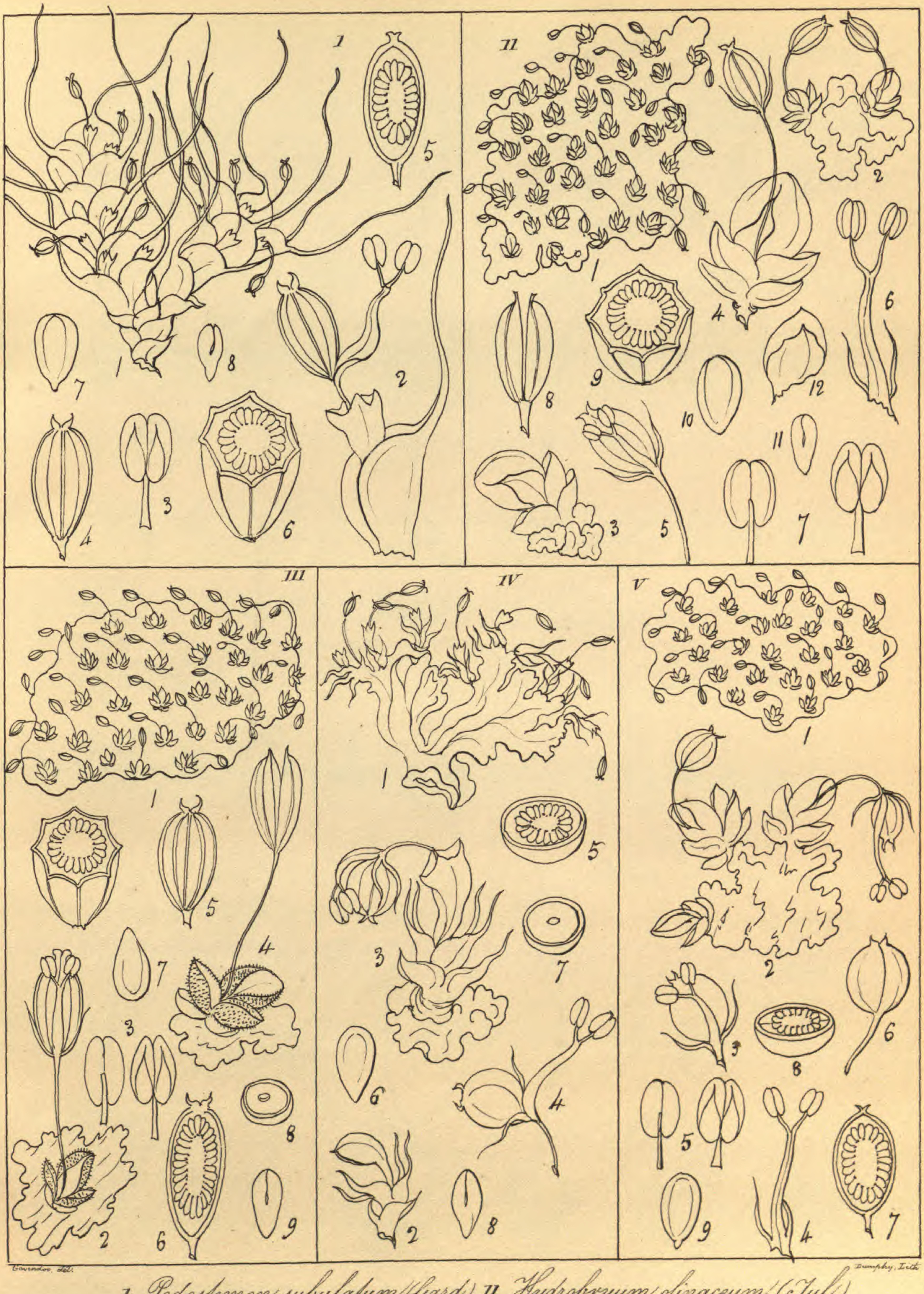
Croton lacciferum (Linn)



I. Dicræa Wallichii (Jul) II D. dichotoma (Jul)
III D. Wightii (Jul) IV. D. longifolia (R.W.) V. D. rigida (Jul)

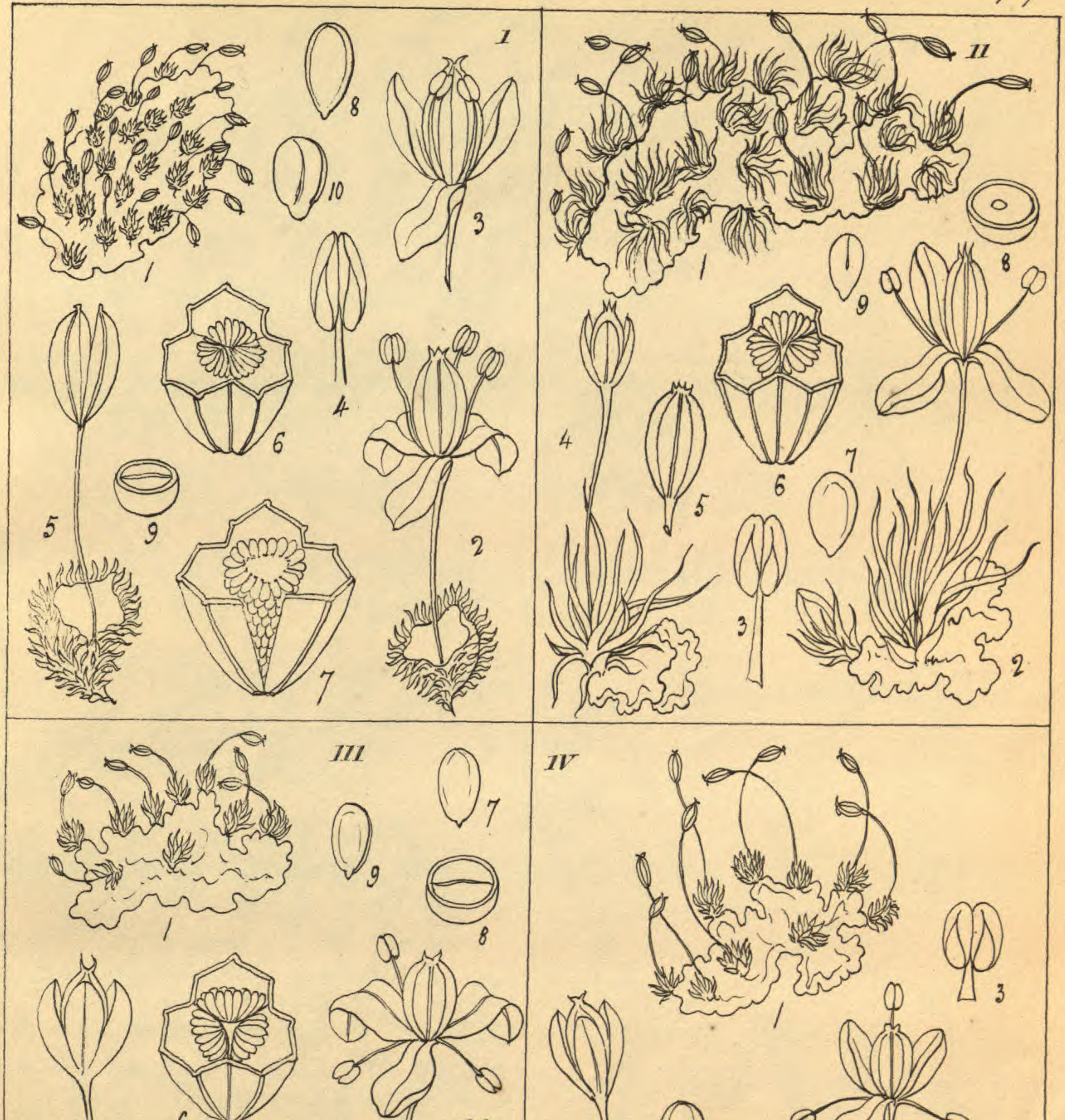


I. Dicræa elongata (Tul.) II. D. stylosa (R.W.)



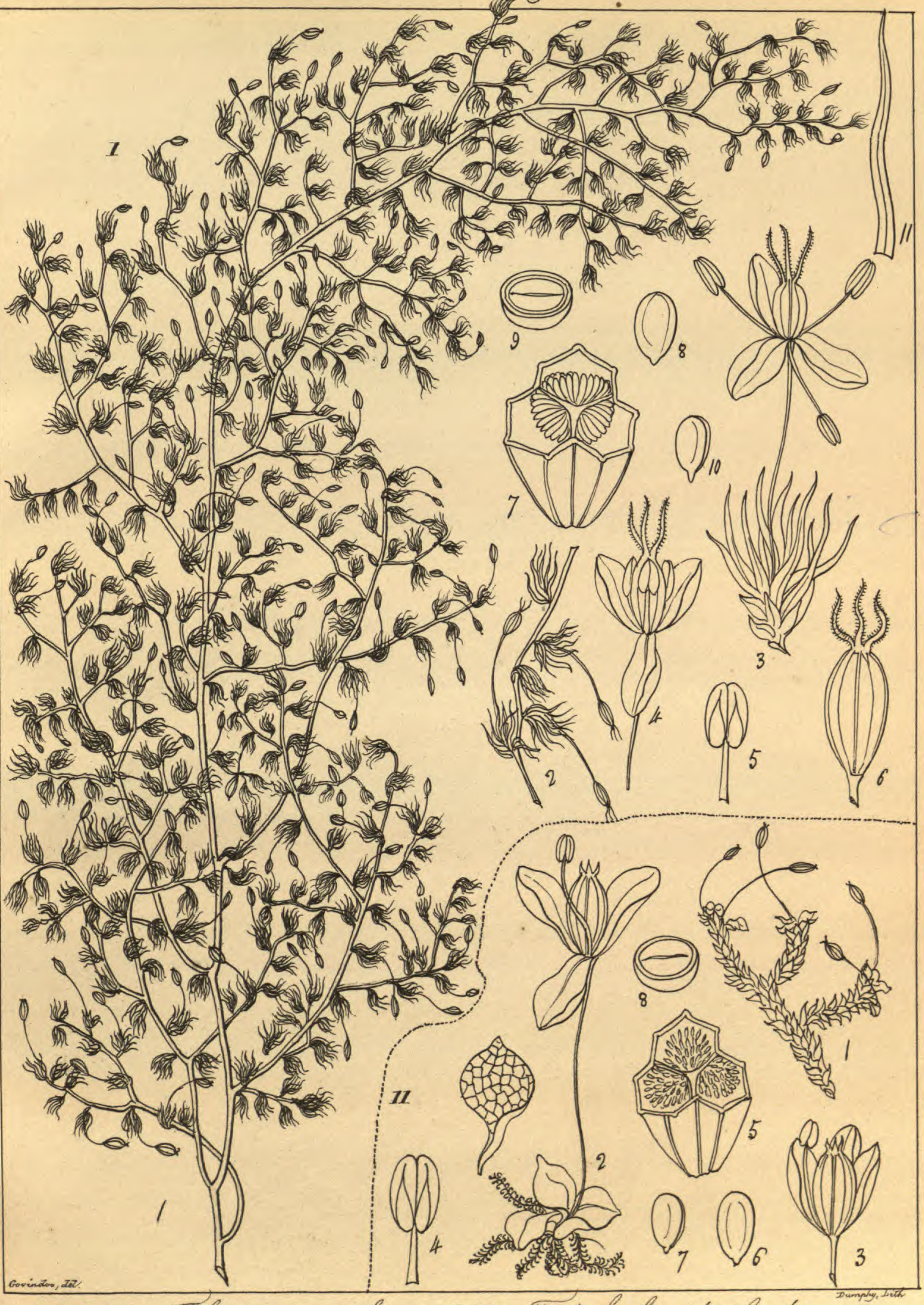
Govindoo, del. Dunphy, lith.

I. Podostemon subulatum (Gard.) II. Hydrobryum olivaceum (Jul.)
III. H. Griseum (J.) IV. Miniopsis Hookeriana (J.) V. M. Johnsonii (R.W.)



Govindoo, del. Dunphy, Lith.

I *Tulasnea Ceylanica* (R.W.) II *Tul-foliosa* (R.W.)
III. *Tul-Lauri* (R.W.) IV. *Tul-pedunculata* (R.W.)



I. Tulasnea ramosissima (R.W.) II. Tristacha bryoides (Gard.)